In collaboration with physicians at The National Jewish Center for Immunology and Respiratory Medicine in Denver, Los Alamos has developed and implemented a telemedicine system (TeleMed) which is based on a national radiographic repository located at Los Alamos. Without leaving their offices, participating doctors will be able to view radiographic data via a sophisticated multimedia interface. Thus, doctors will be able to match their patient's radiographic information with the data in the repository, review treatment history and success, and then determine the best treatment.

This volume image, resampled from 45 CT slices, depicts lungs afflicted with multi-drug resistant tuberculosis (MDR TB). The MDR TB incidence has reached alarming levels; there are 6000 active cases in New York City alone. TeleMed can help to improve treatment efficiency and effectiveness and reduce treatment costs.

Image rendered with Silicon Graphics' Explorer by Allen McPherson. For more information read the Sunrise article in this issue.

Inside this issue:

CIC Customer Service Center . . . . (505) 665-4444
or cichelp@lanl.gov

Integrated Computing Network (ICN)
    Consulting
        Centralized scientific and engineering computing .....consult@lanl.gov or 7-5745
        Lab-wide administrative and business systems ....labwide@lanl.gov or 7-9444
    Passwords (required for access to ICN) ....validate@lanl.gov or 5-1805
    Systems documentation (local and vendor supplied)...7-6992

Central Computing Facility (CCF) 7-4584

Advanced Computing Laboratory (ACL) 5-4530

Local Area Network (LAN) system administration services................................5-2220

Desktop Support Center (DSC) 7-4357 (7-HELP)
    (PC Help for IBM and Macintosh personal computers)
    For questions about PC software: PCSW-help@lanl.gov or 7-5884
    For questions about PC hardware: PCHW-help@lanl.gov or 7-9372
    For questions about Mac software: MacSW-help@lanl.gov or 5-1361
    For questions about Mac hardware: MacHW-help@lanl.gov or 7-6459

Telephone Services Center 7-3400
    (includes voice mail)

Computer training
    Lab-wide systems support training..7-9444
    Computer/workstation training 7-9399
    Personal computer training 7-9071
    Microcomputer support facility seminars...7-4357
        (Macintosh/IBM software, lending library)

List of Forms and Schedules

Sunrise: Creating A Network-based Distributed, Media-rich Computing and Information Environment

Sunrise is a Los Alamos National Laboratory (LANL) project started in October 1993. It is intended to be a prototype National Information Infrastructure (NII) development project. A main focus of Sunrise is to tie together enabling technologies (networking, object-oriented distributed computing, graphical interfaces, security, multimedia technologies, and data-mining technologies) with several specific applications. A diverse set of application areas were chosen to ensure that the solutions developed in the project are as generic as possible. Some of the application areas are materials modeling, medical records and image analysis, transportation simulations, and K-12 education. This article provides a description of Sunrise and a view of the architecture and objectives of this evolving project.

The primary objectives of Sunrise are three-fold:

- To develop common information-enabling tools for advanced scientific research and its applications to industry.

- To enhance the capabilities of important research programs at the Laboratory.

- To define a new way of collaboration between computer science and industrial-relevant research.

The basic paradigm being developed involves a document-centric user interface which allows arbitrary object support including embedded applications, multimedia video/voice fragments, and links to a wide information space. We will eventually develop an information kiosk based on an Asynchronous Transfer Mode (ATM) network so that all the participants can exchange, publish, or interact with applications and data. This will function on heterogeneous platforms, pro-

LANL Sunrise Project and Collaborations

Figure 1. Sunrise Components

vide for constrained access to data through security mechanisms, and be extensible. The data-mining technology will include the ability to quickly browse large complex image databases with various feature extraction capabilities; the ability to merge and purge large complex data sets; and provide advanced, selective, compression algorithms. The focus is on real scale problems, reflecting our belief that only experience with real problems encompassing huge data sets will facilitate true progress. Therefore, our focus will be on developing prototype tools that can be tested in real-sized test beds. We believe the benefits to the Laboratory as a whole will be in helping to define the way research will be done in the future, in enhancing the competitiveness of Laboratory research programs, and in enhancing the nation's ability to use advanced information technologies for applications of importance to industry. The project is organized into subgroups consisting of people working on the enabling technologies and people

working on each of the several representative application areas. Figure 1 illustrates some of these activities and relationships.

Sunrise Structure

The Sunrise project is organized according to an integrated, layered approach. The three basic layers are:

- Hardware, e.g., networking fabric and computer systems.

- Services, e.g., security and database systems.

- Applications, the reason for it all, e.g., manufacturing, medicine.

This approach to structuring the project is illustrated in Figure 2. Some aspects of each layer will be discussed briefly.

Hardware—Computing

Sunrise is making use of several high performance computing resources as net-
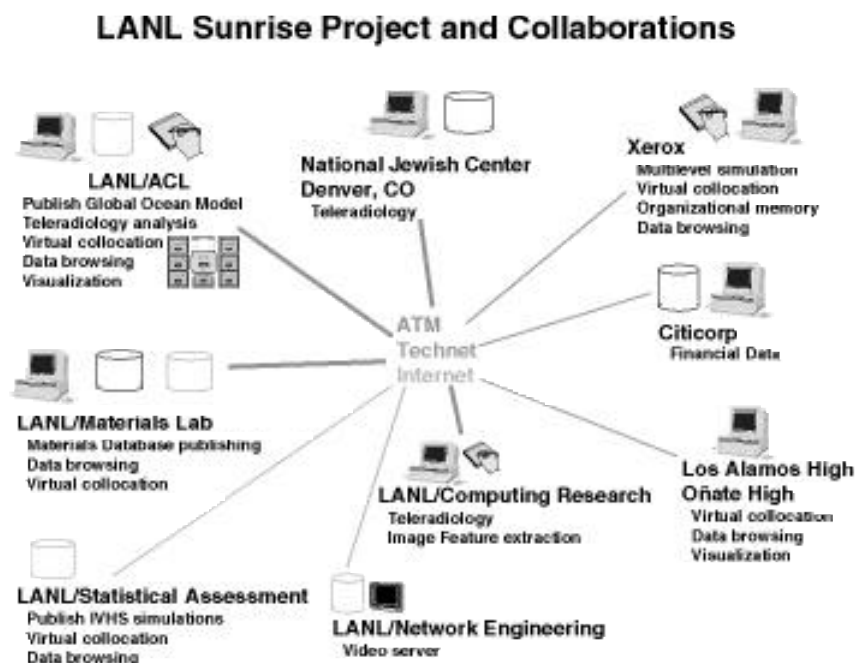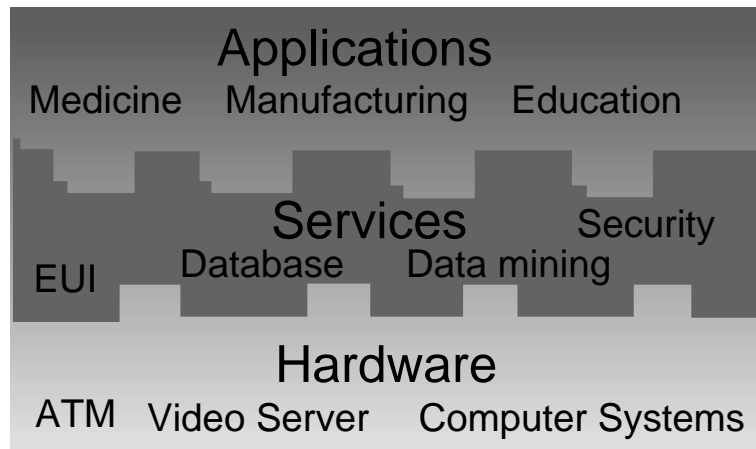
Figure 2. Sunrise Layers of Technology

work-accessible computing servers. The most significant of these are a Thinking Machines CM-5 and a Cray Research T3D. The CM-5 is a 1056 node machine with 33 GB of memory and 440 GB of disk (accessible at up to 200 MB/s). It has 4 High Performance Parallel Interface (HIPPI) 800 Mb/s channels for sending data to other devices. It has a peak speed of 132 Gflops and has sustained over 60 Gflops on real applications. It is being used for global climate modeling, materials modeling, gas and oil seismic and reservoir modeling, as well as distributed visualization and medical image analysis.

The T3D is a 128 node machine with 128 DEC Alpha processors and 8 GB of memory. It has 90 GB of attached RAID disk and one HIPPI channel for high speed communication. It is primarily being used for medical image analysis and various industrial applications.

Hardware—Networking

The Sunrise project will involve the use of several technologies that will enhance the effectiveness of computers in the office environment of a Laboratory staff member. A critical part of this effectiveness is communication and information retrieval. Using e-mail and other Internet applications of today as models, we hope to expand the capabilities of a workstation and its network to provide such things as video on demand, teleconferencing, visualization post processing, and other tools that free up time for the user to be more effective in other endeavors.

At the present time a high performance network fabric is not ubiquitous, so not all of the services just enumerated can be provided to all clients. Therefore, Sunrise currently uses whatever connectivity is available and scales services accordingly. Presently we are using local area 10 MB/s Ethernet and 100 Mb/s FDDI, wide area 1.5 Mb/s (DS1) and 45 Mb/s (DS3) Internet services, and 34 Mb/s SMDS services. A network technology that, hopefully, will support the full service vision is one where various data rates and qualities of service are supported. The emerging ATM appears to provide that support and will eventually be used throughout the Sunrise environment.

Initially, the ATM switches will only support variable bit rate (VBR) service and will be operating at 100 Mb/s. The constant bit rate (CBR) service for support of voice and video will come later as will higher data rates of 155 Mb/s under the Synchronous Optical NETwork specifications (SONET). The SONET aspect is an important issue because telephone companies from the local carriers (US West) to long haul carriers (AT&T, MCI, Sprint, etc.) are now building a SONET infrastructure to support wide area networks using ATM. Their goal is to have the ATM switch located at the central office of the telephone company rather in the computer room. The important point, however, is that the network technology will be the same for local area networks (LANs) as well as wide area networks (WANs), which is definitely not the case today. Using similar technologies in WAN and LAN make interconnectivity seamless and much more robust.

Services—Distributed Objects

The Sunrise project is based on the premise that a distributed object approach will be necessary for a national-scale information system. We are trying to anticipate the future and are using the Object Management Group's (OMG) evolving Common Object Request Broker Architecture (CORBA) since it is the emerging industry standard in this area. We are also investigating the use of the OpenDoc compound document standard. The OpenDoc storage model is based on Bento. Both the OpenDoc and Bento efforts are being coordinated by the Component Integration Lab (CIL).

The usefulness of the NII will be greatly enhanced when users of applications can quickly and easily locate and access data and computing resources in the network. Those resources may be, for example, public or private electronic libraries, data conversion services, or various other application specific services. Since thousands of services built by hundreds of organizations will exist on the network, it is important to facilitate ways of building applications by using software components built by different organizations.

We must build an infrastructure that allows systems to be built and modified with interchangeable components in much the same way that we combine stereo components to build an audio system. When building an audio system we can interchangeably add or subtract components without redesigning the system or even replace a tape player with a CD player or some other device without changing anything else in the system.

Users accessing the NII will be combining desktop machines such as PCs and workstations with various data and computational servers into a widely distribut-

ed yet integrated system. Components of the system will often have different CPU architectures, different data communication infrastructures, different data rate capabilities, different operating systems, and be widely distributed. Nevertheless, users' applications will need to be able to call on those resources as if the resources were locally available.

This component-based system requires further evolution of distributed computing environments. To accomplish this evolution, we are basing the Sunrise environment on the notion of distributed objects. Properly designed object-based systems have a unique advantage in that changes in one area of the system do not affect other areas. A properly designed set of object classes will enable us to link resources in a modular way to manage complexity and yet allow great extensibility. We are building the Sunrise distributed computing infrastructure on Orbix, Iona Technologies' CORBA implementation.

Early emphasis in the development of objects has been on the Sunrise TeleMed project with the National Jewish Center in Denver. The system allows CAT scan and x-ray images of lungs to be submitted from anywhere in the network to an electronic repository. The image is then processed to compute a "signature" that can then be used to find other similar images.

Services—Executive User Interface

The overall goal of this activity is to develop a general, media-rich user interface system which has capabilities that meet the needs of all Sunrise application clients. In general, this is an executive user interface (EUI), one that has a set of convenience capabilities common to all application areas, while still providing application clients easy access to their preferred user interfaces. One of the most important convenience capabilities is to facilitate telecollaboration between users. In its simplest form this feature permits peer-to-peer collaboration in a common screen space. More advanced capabilities will include many-to-many collaboration and video teleconferencing. The Sybase
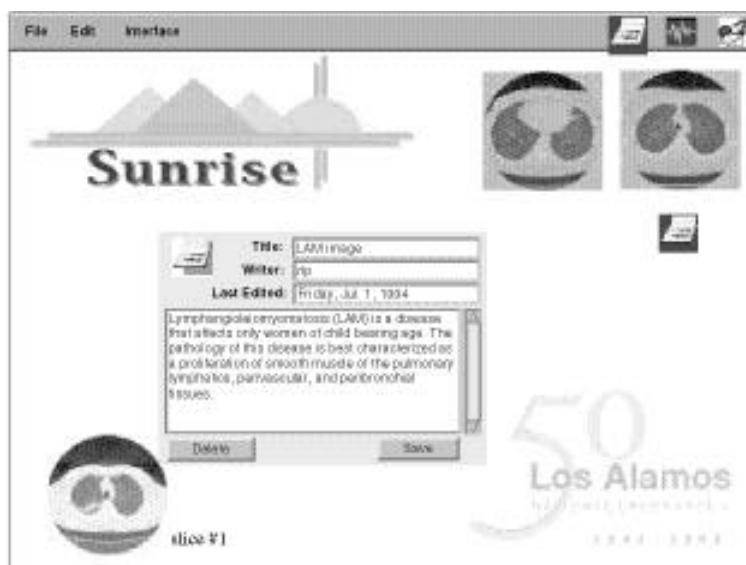

Figure 3. Sunrise Executive User Interface

product GainMomentum is being used for interface development. Among the features of the EUI are:

- Compound (media-rich) document executive, which provides a complete multimedia authoring and display capability. Data stored in Bento (the OpenDoc persistent storage system) documents can be dynamically assembled and viewed.

- A logbook facility, which draws upon the capabilities described above, will allow a researcher to maintain a time-stamped multimedia record of all activities. Since the logbook will be retained as a Bento file, it can be accessed by other applications.

- Generic Sunrise data navigator, which provides a search and retrieval tool, including mixed media search capability. An appropriate viewer is invoked depending on media type.

- Customized, application-specific user interfaces can be defined and easily incorporated. Launch buttons can be added as needed to the basic EUI.

- Other EUI convenience features are a MIME-compliant mailer and viewer, multimedia annotations, post-its, sketchers, audio, video, animation, etc. For intra- and inter-document naviga-

tion, thumbnails, hyperlinks, and World Wide Web (WWW) links are provided.

An example of the appearance of an EUI and the possible contents of a logbook is shown in Figure 3. Here the researcher elected to log a series of radiographic studies, each one represented by a thumbnail icon that points to the study. A Post-it note was added to the page by dragging an instance of the note icon from the right of the tools bar. The Post-it is shown in its open state to reveal its contents.

Services—Security

For the NII to truly be a valuable national resource, it must support a diverse set of users and uses. The network will therefore have traffic ranging in sensitivity from public information (such as income tax forms) to sensitive medical and financial records. The loss or corruption of either would cause serious (and in some cases irreparable) damage to individuals, companies, and government. Computer security is therefore essential to the success of the NII.

The goal of the computer security part of the Sunrise project is to provide host and network security for services and for machines offering those services. To that end, one of the primary projects is to provide the tools to build secure applications easily and in a fool-proof way.

More Sunrise...

We have adopted an ANSI X9-based certifying authority system for secure public key distribution and a Kerberos v4- and v5-based library for securely communicating with the certifying authority. All security features are implemented as a service in the Orbix system (the CORBA implementation mentioned earlier) and are thus available for security enforcement among all objects. In addition, we provide a library for secure communication (includes DES and RSA encryption routines) as well as connect and accept routines for automatically transferring credentials and session keys securely.

TO LEARN MORE
The Sunrise project is discussed, with associated graphics, in a Mosaic server located at Los Alamos. The URL for Sunrise is
http://www.acl.lanl.gov/sunrise

Richard L. Phillips, rlp@lanl.gov
505-665-1343
Network Group (CIC-5)

Distributed Computing Environment (DCE)

DCE is the Distributed Computing Environment from the Open Software Foundation (OSF). DCE is what its name suggests, an environment for supporting distributed computing. It is an integrated set of services that supports the development, use, and maintenance of distributed applications.

At Los Alamos DCE has the potential for enabling distributed computing within the stringent security requirements of Los Alamos and for providing a Los Alamos-wide distributed file service as well as providing an environment for distributed computing.

Some goals of DCE are as follows:

1. To make heterogeneous distributed computing possible. DCE runs on most major workstation platforms as well as supercomputers, midrange processors, desktop systems, and personal computers.

2. To provide users with a communications environment that allows information to flow from where it is stored to where it is needed as simply as possible.

3. To make computer services available without concern for the location of those services in the network.

4. To create a single file system that includes heterogeneous computers throughout the network. This is the Distributed File Service (DFS).

5. To protect network resources using flexible security mechanisms. DCE security is based on Kerberos version 5.

6. To provide tools for managing and changing the network without interrupting services.

DCE is based on the client/server model. A server is a process that provides a specialized service to other machines or processes. A client is a process that uses a server's specialized service during the course of its own work. Distributed applications consist of a client side that initiates a request for service and a server side that receives and executes the request and returns any results to the client.

In order to achieve interoperability, users need an environment in which all systems and their resources are widely available. Networks, which provide communication, are only part of the solution. A distributed computing environment goes beyond simple communication. It provides a wide range of computer services to applications regardless of the location of the user, the application, or the required resources. This allows applications to provide users with better performance and more effective use of computing resources on the network.

DCE is composed of a set of services that can be used, separately or in combination, to form a distributed computing environment. The services are organized into two categories:

(1) Fundamental Distributed Services, which provide tools for software developers to create the end-user services needed for distributed computing. These include a Remote Procedure Call (RPC) capability, a threads service to allow multiple simultaneous RPCs, a security service based on Kerberos, a directory service called the Cell Directory Service (CDS), and a time service to synchronize clocks.

(2) Data-Sharing Services, which provide end users with capabilities built upon the Fundamental Distributed Services. These services require no programming on the part of the end user and facilitate better use of information. They include the Distributed File Service and Diskless Support.

DCE is intended to be operating system and network independent. It provides compatibility with existing environments. We obtain DCE from computer vendors or third party software suppliers for the systems we use.

To find out more about DCE there are several books available at the local bookstores. You may also want to check out the OSF home page on the WWW. The URL is:
http://www.osf.org:8001/

DCE is being used by the High Performance Storage System (HPSS) project and is being considered for other applications at Los Alamos.

In order to allow users at Los Alamos to experiment with and develop DCE applications without having to set up and manage a DCE cell, CIC-8 has set up a heterogeneous DCE cell that is available for limited use.

The current cell contains the following: 2 HP 9000/700 Workstations running HP-UX 9.05; 2 IBM RS/6000 Workstations running AIX; 2 SUN Workstations running Solaris 2.3; 1 Cray Y-MP running 8.0.2.3 (Machine Pi); and 1 IBM PC running Windows 3.1. DCE is also available on other machines and operating systems and soon will be available on the open cluster of IBM RS/6000s.

To use DCE you will need an account on one or more of the machines in the cell and a dce_login account. You may also want to purchase a DCE client license for your workstation and have it join the cell. For more information feel free to contact me by e-mail or phone.

Jim Brewton, jrb@lanl.gov,
(505) 667-6208
Distributed Computing (CIC-8)

Print Gateway Charges

The print gateway (print.lanl.gov) was introduced last summer as a means of sending e-mail messages to someone with no electronic address. E-mail sent to someone at the print gateway results in the memo being routed to the PAGES printer and then delivered to the recipient via interoffice mail.

Starting March 1, 1995, recipients of e-mail routed through the print gateway will be charged the standard PAGES printing charges for each memo. PAGES rates for print jobs are:

$2.00/JOB

$0.19/SHEET

$5.00/PROCESSING

Mary Gentry, (505) 667-7038,
mgentry@lanl.gov
Network Group (CIC-5)

SMARTCARDS: THEY KEEP GOING

A smartcard is a credit-card sized computer that generates passwords, or passcodes, that can be used to logon to the Integrated Computing Network (ICN) at Los Alamos. Smartcards are available to anyone authorized to use the ICN.

System Availability Via Smartcards

Smartcard capabilities continue to grow. The Open UNICOS machines gamma and rho have just been added to the burgeoning list of open and administrative systems accessible via smartcards. Below are listings of what systems are available and how you can access them.

If you telnet to IA (VAX computer) you can access:

Account Control	Performance Appraisal
Affiliates	Personnel
Budget	Receiving/Procurement (PAID)
Capital Equipment	Salary Review
Document Request	Stores
Laboratory Authors	Travel
ail Channels	

If you telnet to IA and then select the IB (IBM computer) option from the system selections menu you can access:

Affirmative Action	Hazardous Material
Chemical Inventory	Information Manager
Electronic Authorization	Property Accounting
Employee Development	Purchasing
Employee Information	Reimbursable Work
Employment	Secretarial/Contract Services
Facilities Project	Service Contracts
Financial Management	Signature Authority

If you telnet to adgate you can access:

ACTVAX	ORION
ADPDP2	SYBASE2
C4COM	VEGA

You can also telnet directly to the following open systems:

> beta
>
> gamma
>
> rho
>
> tig (terminal internet gateway)
>
> register

Using Smartcards with Your Macintosh

Macintosh users can now print from Lab-wide systems when using a smartcard. To do this you must first access IA and then select the IB option from the system selections menu. After accessing the IB systems via smartcard, you may discover that the function keys on your Macintosh are not operating as they should. You can, however, reconfigure the function keys to operate properly by following the instructions below.

1. Activate VersaTerm Pro.

2. From the Settings Menu, select Keyboard.

3. In the Keyboard Configuration dialog box, under Extended Keyboard Options, select Other.

4. Click on the Edit Keyboard button.

5. Select a function key (e.g., click on <F1>).

6. In the Unshifted field, delete ^M (e.g., change ^[1^M to ^[1).

7. Repeat steps 5 and 6 for function keys F2 through F12.

8. When you have reconfigured all function keys, click on OK.

If you have questions about these instructions, please call 667-9444, ext. 2.

Smartcard quick reference cards for both Mac and PC are now available from the ICN Password Office. For more information about how to get a smartcard and how it works, contact the ICN Password Office at (505) 665-1805 or validate@lanl.gov.

Vonetta Pompeo, pompeo@lanl.gov
(505) 665-5245
Customer Service Group (CIC-6)

Sharon Wilhelmy, sw@lanl.gov
*(505) 665-6382*
Customer Service Group (CIC-6)

Computational Testbed for Industry

The DOE's increased emphasis on transferring technology from its Laboratories to US Industry provides significant opportunities for LANL to capitalize on its strengths. Among the resources that can be brought to bear on industrial problems are LANL's capabilities in high performance computing. To accommodate the growing demand for application of computing technologies, the Computational Testbed For Industry (CTI) was established at LANL to provide services to US Industry. The CTI is a DOE User Facility, enabling CTI participants to efficiently and rapidly provide computing resources to US Industry.

The CTI has a primary objective of enhancing US economic competitiveness through the application of computers to industrial needs. This objective is achieved by:

• Providing US Industry access to the computer hardware, software, networks, storage devices, and visualization tools of high performance computing and communications (HPCC) resources at LANL;

• Providing US Industry access to the technical expertise of computational scientists and engineers at LANL;

• Developing and coordinating collaborations between LANL and US Industry in high performance computing;

• Sponsoring Industrial Memberships in the CTI;

• Providing training and consulting for industrial users and collaborators;

• Facilitating information exchange between US Industry and the CTI, Advanced Computing Laboratory (ACL), and Central Computing Facility (CCF);

• Supporting a Users Area with terminals, workstations, classrooms, and conference rooms; and

• Conducting computational science workshops in areas of mutual interest to US Industry, the ACL, the CCF, and LANL.

Located in the ACL at Los Alamos, the CTI offers US Industry access to advanced computer hardware, software,
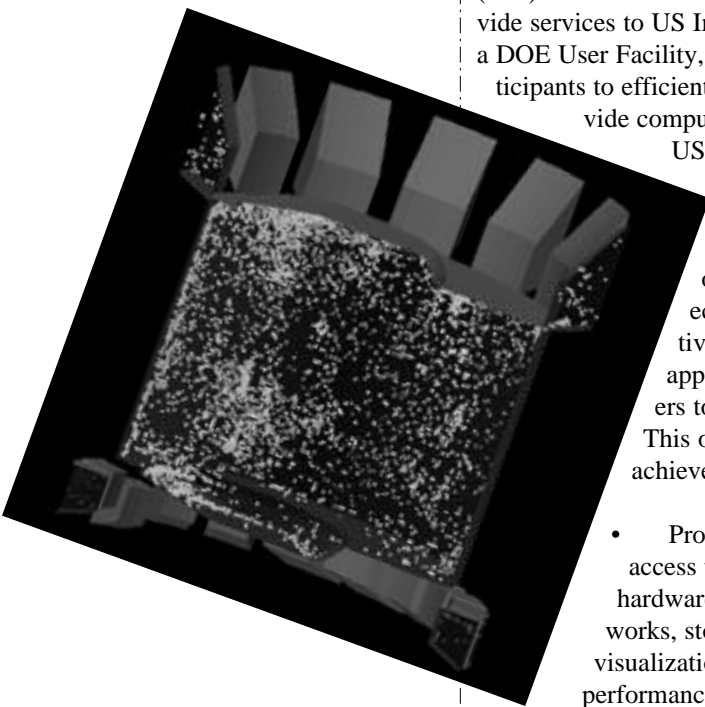
networks, storage devices, and graphics and visualization tools on a cost shared basis. The CTI also provides US Industry access to the technical expertise of LANL scientists and engineers skilled in all facets of modern computing. But equally important, the CTI also functions as an important forum for DOE Labs to learn firsthand from industrial scientists and engineers about the problems facing business and industry.

During the past year, the CTI has been officially designated as a DOE User Facility, which is a major step forward in our ability to collaborate more easily with US Industry. It facilitates the implementation of formal agreements between LANL and US Industry in a much less cumbersome and much more cost effective fashion.
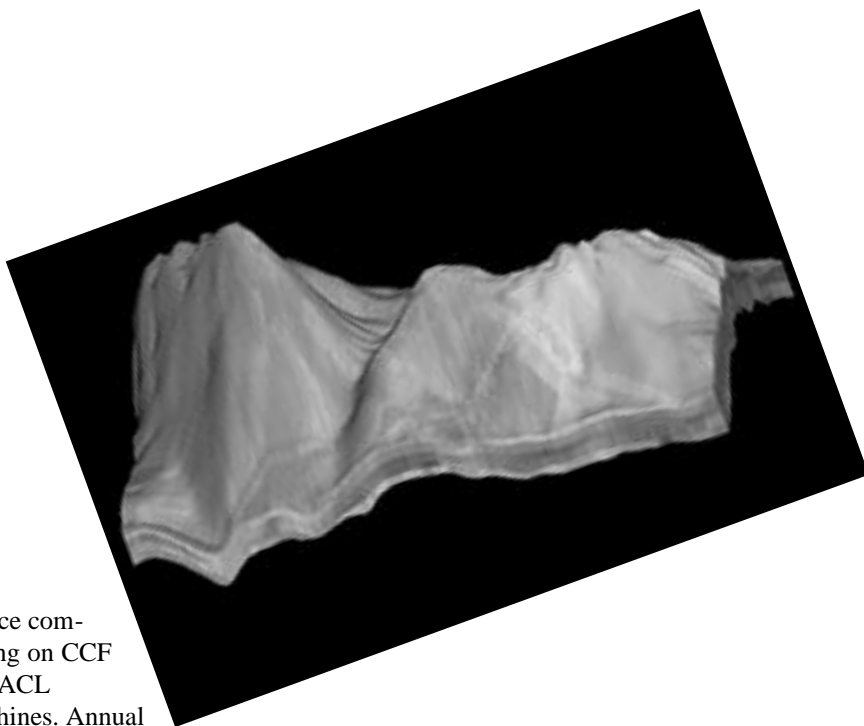
The ACL and the open portion of CCF house one of the world's finest computing resources, both in machines and personnel. The CCF has a CRAY YMP and CRAY M98, while the ACL is host to the Thinking Machines CM5, Intel IWARP, Motorola Monsoon, and the CRAY T3D. In addition to these powerful multiprocessor and massively parallel supercomputers, both the ACL and CCF support state-of-the art software, graphics and file servers, networking, and the necessary people to train and consult on hardware and software matters. The close proximity of LANL staff members, who are open to collaboration in computational areas spanning hydrodynamics, transport, applied mathematics, atomic and nuclear physics, geophysics, environmental monitoring, manufacturing, engineering, materials, just to name a few, provides the CTI with a complete and rich computing environment for training, collaborations, and extended interactions.

Education and training are important components in all CTI industrial collaborations. An extended Computational Science Workshop brings together participants from LANL, US Industry, the CCF, and the ACL to study high perfor-
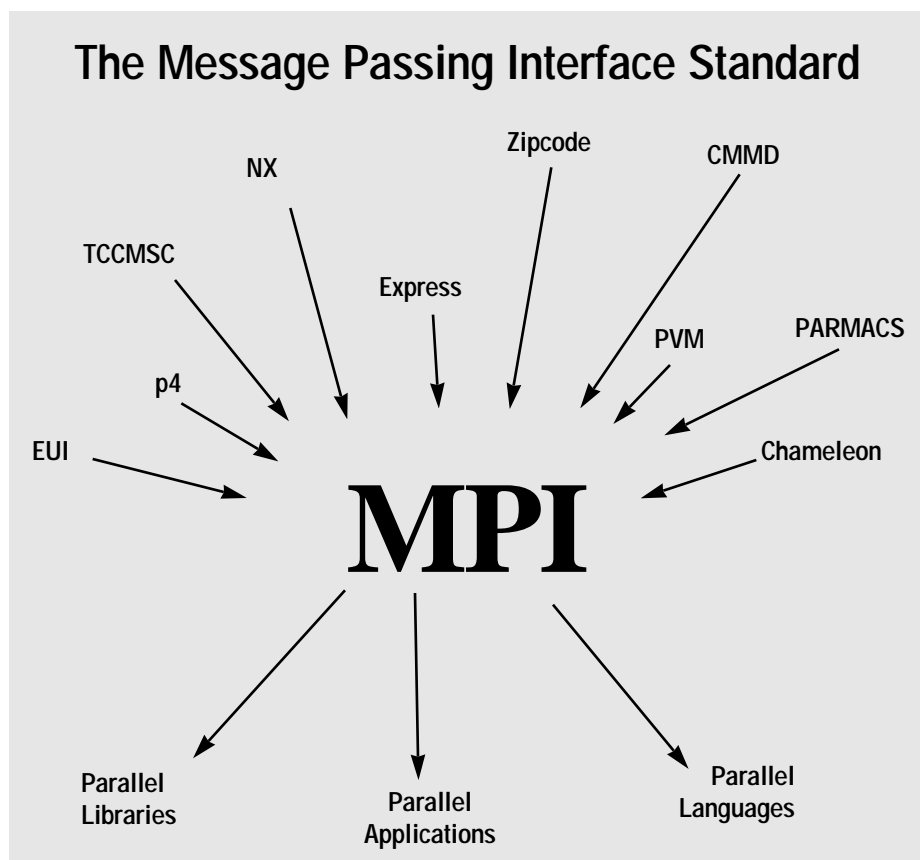
mance computing on CCF and ACL machines. Annual offerings of the Computational Science Workshop are scheduled, as well as shorter, more specific workshops focusing on materials modeling, environmental analysis and assessment, particle transport, fluid dynamics, molecular dynamics, and related computational topics. Siting of Industrial Interns is also a routine activity in the CTI.

For more information about how you can participate in the CTI, contact Bruce Wienke, Director of CTI.

Bruce Wienke, (505) 667-1358,
brw@lanl.gov
Computing, Information, and
Communications (CIC) Division

Parallel Distributed Computing Team Supports
MPI Message Passing Software

The Message Passing Interface Standard

NX

TCCMSC

Zipcode

CMMD

Express

p4

EUI

PVM

PARMACS

Chameleon

MPI

Parallel
Libraries

Parallel
Applications

Parallel
Languages

The message passing paradigm is attractive because of its wide portability and because it can be used in communications for distributed-memory and shared-memory multiprocessor, networks of workstations, and any combination of these elements.

Who Should Use MPI?

Anyone who wants to write portable message-passing programs in Fortran and C. This includes individual application programmers, developers of software designed to run on parallel machines, and creators of environments and tools.

Why use MPI?

One of the most critical families of users is the parallel library and application writers, for whom efficient, portable, and highly functional code is most important. MPI allows them to write applications and libraries that are truly portable.

MPI provides many features intended to improve performance on scalable parallel computers with specialized interprocessor communication hardware. We expect that native high-performance implementation of MPI will be provided on such machines. Implementations of MPI on top of standard UNIX interprocessor communication protocols will provide portability to workstation clusters and heterogeneous networks of workstations. Several proprietary, native implications of MPI are in progress at this time and we hope to make these native implications available on our machines in CIC division.

What is MPI?

Message Passing Interface (MPI) defines the syntax and semantics of a core of library routines useful to a wide range of users writing portable message-passing programs in Fortran or C.

The MPI Standard was completed in March 1991. The MPI effort involved about 60 people from 40 organizations. Most of the major vendors of concurrent computers were involved in MPI, along with researchers from universities, government laboratories, and industry.

MPI provides a simple-to-use portable interface for the basic user, yet is powerful enough to allow programmers to use the high-performance message-passing operations available on advanced machines. One can take advantage of the specialized hardware and software offered by individual vendors.

In an effort to create a "true" standard for message passing, researchers incorporated several systems rather than choosing one system to adopt as a standard. Features were used from systems by IBM, Intel, nCUBE, PVM, Express, P4, and PARMACS.

Where to get MPI and MPI support?

The Parallel Distributed Computing team of CIC-8 is supporting MPI as development software and it is available on the info-server. The team also plans to beta test native implications of MPI and make them available to users on CIC division machines. Information of MPI and how to deploy the software can be obtained from the PTOOL team at ptools_team@lanl.gov or on xmosaic. The URL is

http://www-c8.lanl.gov/dist_comp2/MSGPASS/mpi.html

MaryDell Tholburn, (505) 665-7452, marydell@lanl.gov
Parallel Distributed Computing Team/CIC-8

UNICOS Security Tidbits in the ICN2

With the recent changes to the ICN environment caused by the ICN2 Project, several operational situations may need clarification.

- Delta and Epsilon are running UNICOS Version 7 or higher.

- Zeta is running UNICOS Version 8.

- Beware exchanging libraries between UNICOS 7 and 8; recompile and reload.

- Both Delta and Epsilon are operating at "system high" security level, which is SECRET.

- All files you create and work with on Delta and Epsilon are protected as SRD (secret restricted data).

- The RELABEL command is no longer available.

- When storing files to CFS or sending files to PAGES from Delta or Epsilon, you can affix the correct classification using the cl option for CFS and PPAGES:

  CFS cl=[u,p,c,s] and PPAGES -cl [see man ppages for values]

- The network structure will no longer allow login to Delta or Epsilon from the SUTIG (Secure Unclassified Terminal Internet Gateway).

- Machine Zeta allows you to login at secure unclassified or secure (and you may login from the SUTIG by using your new "secure unclassified password" or from the STIG by using your secret password).

- There are now separate home directories on Zeta for secure and secure unclassified.

- The File Transfer Protocol (ftp) function is allowed between Epsilon and Delta, but when transferring files to these two machines from Zeta, you must be logged onto Zeta at the SECRET level.

- Telnet between Epsilon and Delta is also allowed at the SECRET level.

- In the event of trouble with CGS programs, recompile and reload with current CGS libraries.

Sara Harshman, consult@lanl.gov, (505) 667-5745
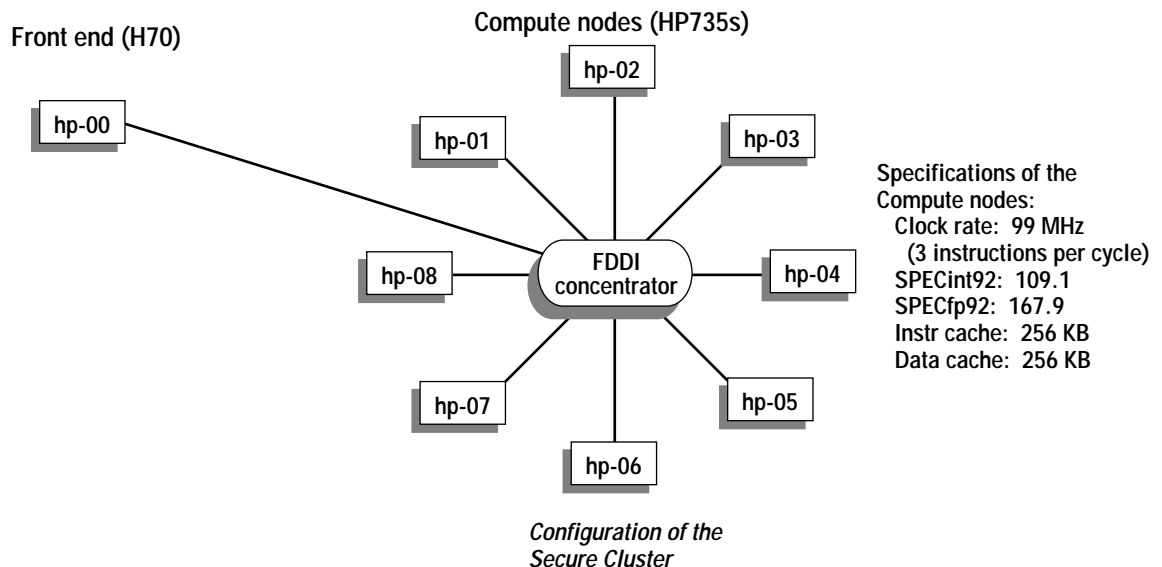*Customer Service Group (CIC-6)/ICN Consultant*
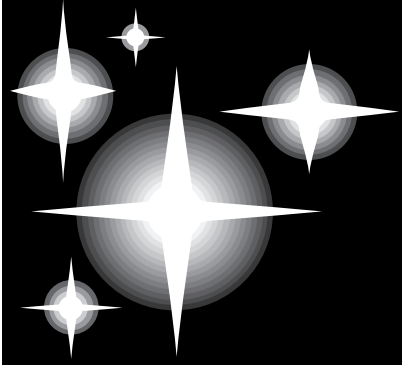
Cluster Computing in the Secure Environment

On December 14, after an intensive and thorough testing period, DOE accredited the new cluster of Hewlett Packard (HP) workstations to operate in the Secure environment. This cluster is known as the Secure Network Compute Server (SNCS) and is available to any valid ICN user with a Q clearance and an ICN secure password. (Contact the ICN Password Office at 505-665-1805 or validate@lanl.gov for information on getting a secure password.)

Machine Configuration

For maximum efficiency and usability, SNCS (pronounced "snicks") has been configured with a front-end machine and 8 compute nodes. The front-end is an H70 with dual CPUs, 256 Mbytes of memory, and 4 gigabytes of RAID disk. Each of the compute nodes is an HP735 with 400 Mbytes of memory (the maximum allowable for this architecture) and 4 gigabytes of RAID disk. All nine machines are currently interconnected via a FDDI concentrator (see figure below).

Front end (H70)

Compute nodes (HP735s)

hp-00
hp-01
hp-02
hp-03
hp-04
hp-05
hp-06
hp-07
hp-08

FDDI concentrator

Specifications of the
Compute nodes:
  Clock rate: 99 MHz
   (3 instructions per cycle)
SPECint92: 109.1
SPECfp92: 167.9
Instr cache: 256 KB
Data cache: 256 KB

*Configuration of the
Secure Cluster*

The use of a front-end interface to this cluster allows a separation of interactive and compute-intensive jobs. Although it is not currently enforced in any way, our intention is that the front-end (hp-00) be used for interactive work, freeing nodes hp-01 through hp-08 to run non-interactive or batch jobs. This configuration provides a good environment for evaluating various schemes for load-leveling, an important consideration in a cluster environment.

Software on SNCS

Software currently available on SNCS includes:

- Fortran 77 (with Fortran 90 extensions)

- C++ environment (including Lex++ and Yacc++)

- C compiler

- CLAMS math library (32 bit version)

- X11, revision 5

- CGS graphics library and pscan

- cfs, ppages, fred, and other ICN software

- Parallel Virtual Machine (PVM)

- Khoros 1.0 (2.0 will be added later)

In addition, all unbundled software available from HP is currently loaded on SNCS and will remain there during an evaluation period while we determine, with user feedback, which software to purchase. Software from other sources may also be purchased, depending on user needs and requests.

Details on the Use of SNCS

Currently, accounts for new SNCS users are added manually. Contact Jack Peterson (jbp@lanl.gov, 505-667-7550) or Cheryl Wampler (clw@lanl.gov, 505-667-0147) to request an account. We are currently writing and testing software necessary to interact with the various servers required to support automated registration.

For charging purposes, we assume users have set their default charge code in the secure Account Control System (ACS) database. If not, this can be done from a secure Cray with the command:

acs set default <Znumber> <chargecode>

FY95 charges for SNCS are the same as those on the Open cluster:

CPU	$9.00/hour
Memory	$0.04/megabyte-hour
Disk	$0.02/megabyte-day

Once a user has a valid account, SNCS is accessed via telnet, ftp, klogin, or kshell from another secure machine. We will eventually use Kerberos to authenticate users, but we are currently using a local authentication method. After a user is on the SNCS machines, a Kerberos ticket is needed for cfs access. As on the Open cluster, the available Kerberos (version 4) commands are k4init, k4rlogin, k4rsh, k4rcp, k4list, and k4destroy.

Future plans

For several months, our major efforts have been toward getting the necessary DOE accreditation to run SNCS in the secure environment. Now that that is past, we will focus on various improvements to the user environment, such as automating certain tasks and determining what software should be provided. User requests and comments during this phase are welcome.

Planned hardware improvements for the coming months include adding HiPPI interconnect boards to all 8 compute nodes and upgrading these nodes to the latest high-performance workstation from Hewlett Packard—the 735/125. This model runs about 25% faster than the 735/99 model which is currently on SNCS.

Stephany Bouchier, scb@lanl.gov, (505) 667-8266
Distributed Computing Group (CIC-8)

Upgrading to Microsoft Word 6.0

Microsoft Word 6.0 is the latest version of Microsoft's very popular word processing program. This Article will cover a few of the issues that relate to upgrading to Word 6.0 from an earlier version of Word, especially Word for the Macintosh. This article will not cover any of the excellent new features found in Word 6.0, such as Wizards, AutoText, AutoFormat, its macro language, zoomable and editable multi-page layout view, integrated drawing layer, etc. These new features are covered in Chapter 2 of the Microsoft Word Quick Results manual and in the User's Guide.

The Macintosh and Windows versions of Word now use the same core code and are both numbered 6.0. (Previous versions were Word 5.1 for the Mac and Word for Windows 2.0.) The versions of Word on these two platforms are now virtually identical, and, if fact, the same manuals are used for both versions of Word. Microsoft Word is also found in Microsoft Office, which includes Excel and PowerPoint.

Microsoft covers the specific details about upgrading from a previous version of Word. For Window users, this is covered in Chapter 6 of the Microsoft Word Quick Results manual. However, even though Microsoft took the space to devote an entire chapter in the same manual on switching from WordPerfect to Word for Windows, it did not deem it worthy to include a chapter for Macintosh users. And there are more significant changes to the Macintosh version of Word than to the new Windows version of Word. For instance, Microsoft changed many of the key commands in the new Mac version, such as, the keys to check spelling were changed from Command-L to Command-Option-L.

To find out about the changes in the new Word for the Macintosh, you need to choose Microsoft Word Help from the Help menu at the right of the menu bar. Click Reference Information in the Word Help Contents window, and then click What's New in Word Version 6.0. (There is also a Microsoft Application Note describing the changes for Word 6.0 for the Mac. See the Microsoft FastTips Technical Support section at the end of this article for more information.)

By default, Word 6.0 will install into your current Word directory and update your old Word program. If you want to keep your old version of Word, be sure to create a new directory for Word 6.0's installation.

Converting to and from Older Word File Formats

Older versions of Word use a different file format than does Word 6.0. You can open earlier Word documents in Word 6.0, but if you save them in that format, you will not be able to read that document in the older version of Word without adding additional converter software. For example, if you open a Word for the Mac 5.1 document in Word 6.0 and save it as such, you could no longer open that document in Word 5.1.

If you're using Word 6.0 and you want to save a document in a different format (such as Word 5.1), select Save As from the File menu. At the bottom of the dialog box, select the file type in the Save as File Type pull-down menu. See the illustration below for an example. (The Windows version has the same Save as File Type pull-down menu.)
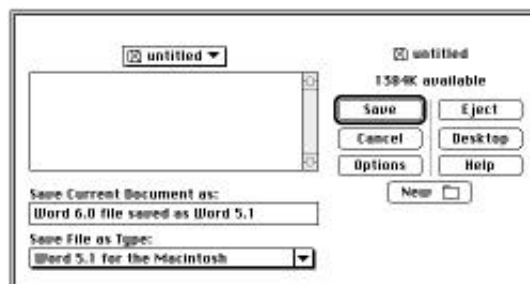
Also, when installing Word for the Mac using anything but a Complete install, the converter files are not installed, without which you can't save a Word 6.0 document in an earlier Word format, or in any other format for that matter. This can prove very frustrating, as Word will ask you if you want to save an older Word file in its current format or in the Word 6.0 format, but without the converter files you will not be able to save the file in the older format (such as version 5.1). To install these files, either do a Complete Installation (which at around 25 MB it may require a new hard drive) or after the smaller installation, rerun the Word setup program, click on the Add/Remove button, select Components Not Yet Installed, and install the Converters & Filters option.

Microsoft does make available, free of charge, converter files to add to the older versions of Word that allows them to read Word 6.0 files. This software is available from Microsoft's ftp site, ftp.microsoft.com, and on ftp.lanl.gov in the Microsoft directory in either the Mac or Windows software sections. The file is named mswrd6.exe for Windows and mswrd6.hqx (or mswrd6.sea) for the Mac. Microsoft also offers additional converters for the Mac, such as MacWrite II, Word for DOS, versions 3-6, etc. These converters are in a file named mw6sup.hqx.

Problems with Word 6.0 For the Macintosh

The industry press has universally lambasted Word 6.0 for the Mac for its huge size, slowness in being released, slowness in operation, and non-Mac-like interface. For a complete installation, Word 6.0 requires a Mac with a 68020 processor or better, at least 25 MB of hard disk space, and at least 4 MB of RAM; at least 27 MB of hard disk space and at least 8 MB of RAM are required for the Power Mac version. Microsoft took a long time to release Word 6.0 for the Mac (7 months after the Windows version was released) and an even longer

time to release the Power Mac version (5 more months after that). And some functions in Word 6.0, especially the time to load, are slower than Word 5.1.

In fact, Microsoft even recommends using Word 5.1 if you are using a 68030, 25 MHz or slower Macintosh. The RAM and hard disk requirements of Word 6.0 may also lead you to keep using Word 5.1. Microsoft has said that if you want Word 5.1 on a Mac that does not have Word installed, you can buy a copy of Word 6.0 and install Word 5.1 from someone else's old disks.

To its credit, though, Word 6.0 does have many new features. And Microsoft argues that these new features require more hard disk space. Remember that in the Setup program you can install and remove specific parts of Word. Microsoft also said that rewriting the core code for the Mac version took much longer than anticipated. It was a huge effort, and I believe Microsoft made the decision to release Word 6.0 for the Mac even with its performance problems because it was so long overdue.

Microsoft knows the percentage of computers in the industry and releases its Windows products first, but hopefully will never again repeat the length of time it took to release its current Mac versions. Microsoft would be the 7th largest software company in the world from its Macintosh sales alone, and makes a higher per box profit on its Mac products. So, even though some people think otherwise, Microsoft does have a vested interest in the continued success of Macintosh computers.

Microsoft states that part of the performance problem with Word 6.0 on the Mac is a result of various third-party extensions and control panel files. The way to test for this is to boot the Mac while holding down the shift key to turn off the extensions. If Word 6.0 then runs faster, you know that this is the cause. It would then take some detective work to find the particular file (or files) that

causes the performance hit. Using Extension Manager to select which extensions load would help with this. (I found the extensions on my PowerBook Duo, especially Now Menus, to greatly slow Word 6.0 down.)

Finally, if you transfer a Macintosh file to Word for Windows 6.0, you will not be able to spell check the document. You first have to select the contents of the file, then select Style from the Format menu, click on the Modify button, select Language from the pull-down menu, select English (US), click OK, click OK, and then click on Apply. Microsoft's technical support informed me that this is not a bug, but a feature.

Power Macintosh Memory Tip
To more effectively use the memory in a Power Macintosh, you should turn on the minimum amount of virtual memory. Open the Memory control panel, click Virtual Memory on and select the minimum amount of virtual memory in the pull-down menu. Just having virtual memory turned on will decrease the memory requirements for most PowerPC applications.

You do not need this if you are using RAM Doubler from Connectix. Microsoft Office was shipped with a copy of non-Power PC RAM Doubler. So, if you are using RAM Doubler on a Power Mac, you need to update RAM Doubler to version 1.5.1.

Making Macintosh Word 6.0 Look More Like Word 5.1
One of the biggest complaints about Word 6.0 for the Mac is the way Microsoft changed the Toolbars. You can add the old Word 5.1 toolbar by selecting Toolbars from the View menu and click on the Word for the Macintosh 5.1 selection and deselecting the current toolbar.

You can move the buttons around on a toolbar by holding down the Command key while you drag a button around. To make room on a toolbar for new buttons, hold the Command key down and drag the unwanted button off the toolbar.

Some Word 6.0 users miss the single and double line space buttons. To add a button to a toolbar, you must first display that toolbar using the Toolbars command on the View menu. Then from the Tools menu, choose Customize, and click on the Toolbars tab. In the Categories list, select Format (or one of the other categories for other buttons). Under Buttons, click the Single Line Spacing Button and drag it to the position on the toolbar where you want to add the button. Choose the Close button.

If you accidentally double-click on a toolbar, it will "tear off" and become a floating toolbar. To put it back up on top, double-click on the small menu bar on the floating toolbar.

If you want to change the key-combinations in Word 6.0, you can select Customize under the Tools menu, and click on the Keyboard tab.

The former Document and Section commands have been combined into a single Word 6.0 command called Document Layout, which is located on the File menu. The former Character command is now called the Font command and is located on the Format menu.

To install the custom dictionary you created in Word 5.1 for the Macintosh, first open a new document based on the Normal template by choosing the New button on the Standard toolbar. Then, from the Tools menu, choose Options and select the Spelling tab; under Custom Dictionaries, choose the Add button; and from the List Files Of Type box, select All Files. Select the custom dictionary you want to use in Word 6.0 (Word 5.1's custom dictionary is probably in the old Word Commands folder) and then choose the Open button. Word adds the dictionary to the Custom Dictionary in the Tools Options dialog box and selects the check box next to it. When this happens, the custom dictionary is ready to use in Word 6.0.

There is also an easy way to add some of the changes you made to Word 5.1. From the File menu, select Open. Open the Macros folder in the Word 6.0 folder and open the 5.1 Upgrade macro. This can convert a Word 5.1 address list and add a Font menu. If you don't have a Macro folder, you can install it with the Setup program. (Look under the Tool section in the Office Setup.)

Finally, Word 6.0 automatically converts setting files from Word 5.1 when you open a Word 5.1 settings file. To convert a settings file, select Open from the File menu, select the Word 5.1 settings file (called Word Setting (5) in the Preferences folder in the System Folder), then press the Open button. Follow the instructions on screen to complete conversion.

Latest Versions of Word 6.0

The latest version of Word for Windows is currently 6.0c. This fixes several bugs, such as correctly reading Macintosh PICT images, providing Lotus Notes Field Exchange support, and improving performance. Although the 6.0a patch was a simple, small application, the 6.0c patch comes on a set of ten disks. (A 6.0b version was never released.) Disks 2 to 10 come on the DMF (Distribution Media Format) that places 1.7 MB of data onto a high-density disk. These disks cannot be directly copied with DOS.

The current version of Office for Windows is 4.3 and incorporates the changes in its various programs.

The Power Mac version of Word has been released, and an upgrade is available free of charge. The current version of Microsoft products come on what is called a fat binary; that is, both the 680x0 and the Power Mac versions come on one set of disks.

Microsoft has announced a Word 6.0a patch for the Mac to be released around March of this year. Announced improvements include load time improvements, extension conflict resolutions, and a macro to automatically make Word 5.1

command keys work with Word 6.0 (Both Excel and Office for the Mac will also have maintenance releases as well.)

These updates will be available from Microsoft (1-800-426-9400) and from the CIC-2 Desktop Support Center.

A Few Final Tips

Remember that you can use the right mouse button on Word for Windows to get a useful context-sensitive menu of commands. To get the same menu of commands on Word for Macintosh, you can either use the Control button and mouse button or use the Command button, Option button, and mouse button.

If you do not like the "auto-select" or Smart Cut and Paste option in Word 6.0, in which it automatically selects words at word boundaries, you can turn this feature off. Select Options from the Tools menu, click on the Edit tab, and turn Smart Cut and Paste off. You can also hold down the Option key on the Mac or the Alt key in Windows to override this feature. (This also allows you to do a free-form select, such as down columns of text.)

If you are having problems with Word 6.0, you might have a corrupted settings file or a corrupted Normal template file. In Word 6.0 for the Mac, you can hold down the Shift key and double-click the Word 6.0 application icon to disable these two files. With Word for Windows, you will need to rename the settings file (called winword.opt) which is in the Winword directory or rename the template file (called normal.dot) which is in the Template directory. If the problem goes away, you will need to delete the troublesome file.

Microsoft FastTips Technical Support

Microsoft FastTips are short articles published by Microsoft that address specific technical topics. FastTips are free and you can obtain them via fax from

Microsoft by calling 1-800-936-4100. After dialing the 800 number, press 2 for Microsoft Word, press 1 for Windows or 2 for Macintosh, and then press 1 for version 6.0. You will then be asked to enter a catalog order number for the FastTip you want. Below is a list of FastTips and their order numbers.

FastTips on Word 6.0 for Macintosh

• Information on how to optimize Word 6.0's performance on the Mac is FastTip #1052.

• A list of what's new in Word 6.0 for the Mac is FastTip #1053.

• Information about file conversion can be found in FastTip #1054.

• Frequently asked questions about the menu changes in Word 6.0 for the Mac is FastTip #1056.

• For more tips on optimizing Word 6.0's performance choose FastTip #1127.

FastTips on Word 6.0 for Windows

• A list of what's new in Word 6.0 for Windows is FastTip #0912.

• A list of the fixes in Word 6.0a for Windows is FastTip #111552.

• A list of the fixes in Word 6.0c for Windows is FastTip #120573.

You can order the FastTip's map and catalog for a listing of other FastTips Microsoft offers. (These documents should also be on the lab ftp server, ftp.lanl.gov.)

Microsoft also offers free phone technical support. For Macintosh Word support, call (206) 635-7200; for Word for Windows support, call (206) 462-9673. You can also call the CIC-2 Desktop Support Center at the numbers listed below.

If you have further questions, call the Desktop Support Center help lines. For PC Software help call (505) 667-5884; for Mac Software help call (505) 665-1361.

John Layne, jpl@lanl.gov
505-665-5090
Desktop Group (CIC-2)

CIC Computing Classes

CIC offers a variety of computing courses for the professional development of Laboratory employees. The courses listed in Table 1 will meet at the time and the date shown. Time and date for the courses in Table 2 are not known at this time. Courses in Table 3 run continuously from month to month.

Course Registration

To register: (1) check the box beside the appropriate course, (2) complete the Enrollment Information section located on the back of this form, and (3) follow the mailing instructions also on the back of this form. Submittal of a Course Registration form does not guarantee participation in an advertised class, but it is the only way to get into the queue for notification of upcoming classes. Classes are conducted in a secure area unless noted; uncleared participants require escorts. Call the Training Coordinator at 667-9399 for more information.

Table 1 Courses with confirmed time and date

COURSE TITLE	INSTRUCTOR	COST	DATES/TIME
Solaris 1.X Advanced System Administration	John Nouveaux, SMI	$1500-$1800	3/27/95 through 3/31/95
Solaris 2.X System Administration	Annette Lege, SMI	$1500-$1800	2/27/95 through 3/3/95
Solaris 2.X Network Admin. (Advanced)	John Nouveaux, SMI	$1500-$1800	4/17-21/95

Table 2 Courses with time and date to be arranged (TBA)

COURSE TITLE	INSTRUCTOR	COST	DATES/TIME
C Programming (Beginning)	Marilyn Nelson	$1000-$1400	TBA
C Programming (Advanced)	Michael Chase	$1000-$1400	TBA
UNIX (Beginning)	Ted Spitzmiller & Jeffrey Johnson	$810	TBA

Note: Detailed course descriptions are provided on the following pages.

cut along dashed line
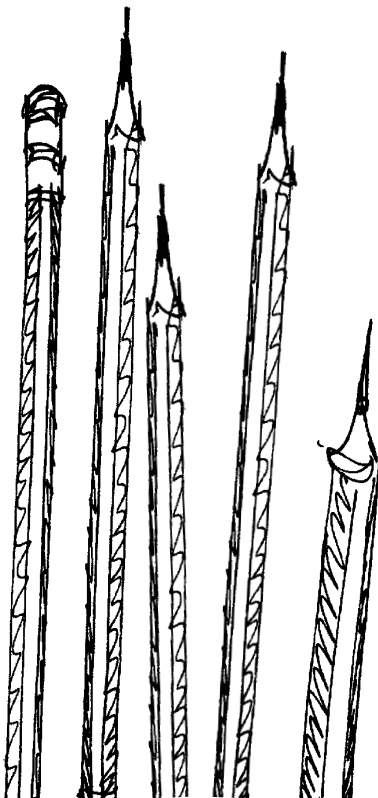
Name _____

Phone _____ Z-Number _____

Group _____ Mail Stop_____

Program Code* _____ Cost Code*_____

Group Leader Signature _____

Fold on This Line First

Fold Here

NO POSTAGE
NECESSARY
IF MAILED
IN THE
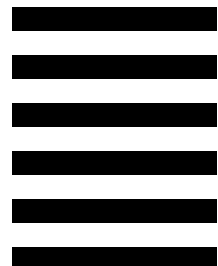UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 88 LOS ALAMOS NM

POSTAGE WILL BE PAID BY ADDRESSEE

CUSTOMER SERVICE GROUP (CIC-6)
CIC DIVISION TRAINING, DEVELOPMENT, AND COORDINATION TEAM
MAIL STOP B295
LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO 87545
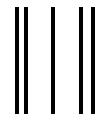
C Programming (Beginning)

Location: CIC-Division Classroom, TA-3, SM-200, Room 210 (secure area).

Prerequisite: An understanding of and useful skills in a high-level programming language. A current ICN password is required.

Enrollment: Minimum 10/Maximum 16.

Topics: Introduction and Fundamentals; Basic Semantic Constructs—Getting Started; Base Level I/O With C; The Preprocess-Compilation Environment; Operators, Data Types, and Storage Classes; Control Flow Constructs; Conditional Constructs; Higher-Level Data Constructs in C; File I/O; UNIX Software Tools and POSIX System Calls.

C Programming (Advanced)

Location: C-Division Classroom, TA-3, SM-200, Room 210 (secure area).

Prerequisite(s): Useful skills and experience with the C Programming language.

Enrollment: Minimum 10/Maximum 16.

Topics: Data Structures, Algorithms, and OOP; An Advanced Clinic for C Programmers; The ANSI C Recommendation X3.159; C and ANSI C War Stories; The Data Structure and the Assessment of Algorithms; Arrays; Structures; Unions; Stacks; Queues; Linked Lists; Recursive Functions; Binary Trees; Hashing; File Organizations Using the C Runtime Library; Standard Interprocess Communication Mechanisms; An Introduction and Overview of AT&T's C++ 3.0; Appendix: references for periodicals, journals, and texts.

Solaris 1.X Advanced System Administration

Location: CIC-Division Classroom, TA-3, SM-200, Room 210 (secure area).

Prerequisite: Solaris 1.X System Administration or equivalent experience.

Enrollment: Minimum 10/Maximum 12.

Topics: TCP/IP networking model's major protocols; Monitoring network traffic; Monitoring/controlling Address Resolution Protocol (ARP) cache; Setting up/configuring/managing a Sun router and subnets; Pros and cons of TCP versus User Datagram Protocol (UDP); Configuring/maintaining Remote Procedure Call (RPC)/based files and applications; Managing client-server communications; Analyzing network configurations for performance tuning; Assessing disk loads for improved I/O throughput; Modifying file system parameters for increased disk space utilization and performance; Analyzing Virtual Memory, paging, swapping, RAM and swap space usage; Evaluating NFS statistics and reconfiguring for increased performance; Tuning kernel parameters to optimize buffer cache usage; Creating and adding a custom NIS map to an existing domain; Setting up and maintaining a DNS domain.

Solaris 2.X System Administration

Location: CIC-Division Classroom, TA-3, SM-200, Room 210 (secure area).

Prerequisite(s): Sun Essentials for Administration or equivalent experience.

Enrollment: Minimum 10/Maximum 12.

Topics: Custom installation of Solaris 2.X server; Add peripheral devices; Use format utility to display partition information; Compress and send binary files; Change system run levels;   Add startup files for additional services; Add and remove software packages; Configure terminals and modems; Administer disks and file systems; Discuss basic networking concepts; Configure NFS to support the client-server environment; Use the automounter; Add and remove diskless clients; Back up and restore file systems; Perform basic recovery and troubleshooting procedures; Configure and administer the NIS+ environment.

Solaris 2.X Network Administration (Advanced)

Location: CIC-Division Secure Classroom (TA-3, SM-200, Room 210).

Prerequisite: Solaris 2.X System Administration or equivalent skill.

Enrollment: Minimum 10/Maximum 12.

Topics: Analyzing and tuning your network configuration for optimal performance; Installing an Internet network router and enabling subnetting; Identifying and using network troubleshooting tools; Installing UUCP between existing Solaris 2.X networks; Configuring sendmail and using advanced name service features; Using network application tools for system installation and configuration.

UNIX (Beginning)

Beginning UNIX—This course has been restructured to address generic UNIX information. There is no longer a focus on Sun operating systems and tools. Additional topics are being added. This course will probably be offered on a quarterly basis.

Location: CIC-Division Classroom, TA-3, SM-200, Room 210 (secure area).

Prerequisite: Familiarity with a UNIX workstation.

Enrollment: Minimum 8/Maximum 10.

Topics: Overview of the Workstation environment; Getting Started; The UNIX File System; Manipulating Files; Customizing Your Environment; The C-Shell; Editing and Writing with vi; Using the Network; Discussing NFS and NIS; Using basic system status commands; Startup and shutdown procedures; Using tar.
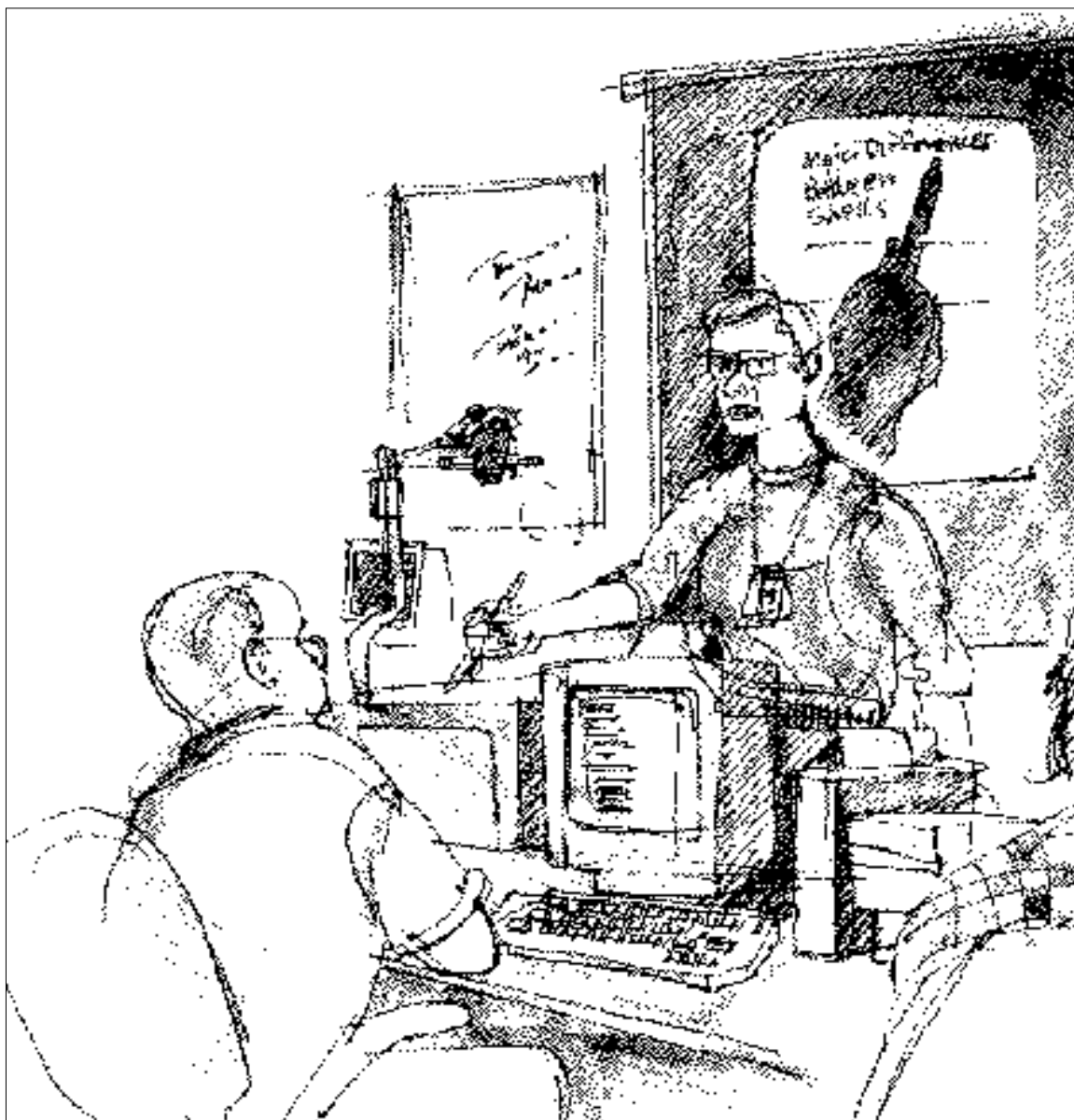
Lab-Wide Systems Training

The Customer Service Group (CIC-6) offers training for users of Laboratory information systems. The CIC-6 courses offer training for a variety of personnel including property administrators, group secretaries, training coordinators, budget analysts, group leaders, or anyone needing to access training records, property records, costs, employee information, travel, chemical inventories, etc. Refer to the table on pages 22 and 23 for specific information about courses currently offered.

Course Registration

You must have a valid "A" or "U" level ICN password before taking any of the courses shown in the table. To register for a course, call CIC-6 Training, Development, and Coordination section at 667-9444 or send e-mail to classes@lanl.gov. You will be sent a registration form to be completed and returned.

Course Title	Date	Time	Cost	Course Number
ALL-IN-ONE Basic Electronic Messaging	2/16/95	8:30 - 12:00	$410	Course #6882

Participants receive hands-on instruction to create, read, and print electronic mail. Participants also learn how to edit mail, create distribution lists, send mail to a FAX machine, and grant mail access to others. Prerequisite: an ICN password and an account on the OFVAX.

Automated Chemical Inventory System (ACIS):	Scheduled Upon Request		$410	Course #7480

Participants receive hands-on instruction to update the status (end-user,location, quantity) of chemical containers. Participants will also learn to generate chemical inventory reports by chemical name, end-user, location, and organization.

Budget Computing System (BUCS):	2/10/95	8:30-12:00	$410	Course #3527

This training is an introduction to the Budget Computing System (BUCS). Students practice generating "quick reports" and reports requiring parameter files. An introduction and demonstration of (no "hands-on") allocating and forecasting procedures are given during the three-hour session.

Directory Information System (DIS):	Scheduled Upon Request		$410	Course #7072

Lab-wide customers responsible for maintaining the Laboratory directory in the Employee Information System will receive hands-on instruction to update Laboratory employees, update and add non-Laboratory employees, retrieve location and address information for any employee, and print reports.

Electronic Mail Overview	2/3/95	9:00 - 10:30	No Fee	Course #9757

This free introductory class is an overview of electronic mail at the Laboratory. In this 90-minute class, the instructor demonstrates how to create and send an electronic message using ALL-IN-1 electronic mail and Eudora electronic mail. The instructor will discuss the advantages of using electronic mail and the types of electronic mail that are supported by CIC Division. This is not a hands-on class.

Employee Development System - Basic Training (EDS I):	2/7/95	8:30 - 12:00	$410	Course #5289

The course provides hands-on instruction to request course enrollment, use the on-line course catalog, retrieve training transcripts, and assign EDS authorities. The student will learn to create courses, add students to the courses, and generate several training reports.

Employee Development System - Training Plans (EDS II):	2/22/95	8:30 - 12:00	$410	Course #7155

Participants receive hands-on instruction to create and maintain training plans, assign assignment codes, and generate training plan reports. Attendees must have prior training in the Employee Development System (course #5289).

Facilities Project Information/Work Orders (FPI/WO):	Scheduled Upon Request		$410	Course #6996

Lab-wide users with a need to view the status of work orders and tickets in their organizations will receive hands-on instruction to request, print, and review work order, ticket and project summary information reports.

Financial Management Information System (FMIS):	2/23/95	8:30 - 12:00	$410	Course #8338

Participants receive hands-on instruction to "explode" and "transfer" through the costs, allocations, and outstanding commitments screens. In addition, participants will create/review reports, access the Information Manager Utility for printing reports, and learn how to assign authorities in the system.

Hazardous Materials Transfer Tracking System for Radioactive Material (HMTTS/NRAM):	Scheduled upon request		$410	Course # 7907

Participants receive hands-on instruction to create, update, and print the non-RAM Hazardous Materials Transfer Form (HMTF). Attendees must have completed "Completing the HMTF for Non-RAM," course #7512, sponsored by HS-8.

Course Title	Date	Time	Cost	Course Number
Hazardous Materials Transfer Tracking System for Radioactive Material (HMTTS/RAM):	Scheduled Upon Request		$410	Course #7993
	Participants receive hands-on instruction to create, update, and print the Radioactive Materials Transfer Form (RMTF). Information about the non-RAM Hazardous Materials Transfer Form (HMTF) is included. This course is appropriate for people who fill out both RAM and Non-RAM forms. Attendees must have completed "Completing the RMTF," course #7517, sponsored by HS-8.			
Information Access System (IAS):	Scheduled upon request		$410	Course #5223
	Students receive hands-on instruction to search, retrieve, and print information in the Financial Management Handbook, material safety data sheets (MSDS's), and Department of Energy (DOE) orders. As time permits, other options in the Information Access System (IAS), such as Update News, meetings, visitors, colloquia, and PC Help are demonstrated.			
Introduction to Lab-Wide Systems:	2/24/95	8:30 - 10:30	No Fee	Course #2900
	This introductory class is an overview of Lab-wide information systems. During the 90 minute session, students learn how to become Lab-wide system users and access those systems. Several Lab-wide systems are demonstrated and their functions are discussed. Optional hands-on exercises are offered at the end of class.			
On-Line Forms	2/15/95	8:30 - 12:00	$410	Course #9756
	Participants will learn to use Mosaic software to access Lab-wide information and forms. Using Jetform Filler software, participants will access, complete, and print forms such as the "ICN Validation Request," "Visitor Request for Unclassified Visits to Security Areas," and "Request for Quotation."			
Property Accounting, Inventory, & Reporting (PAIRS):	2/14/95	8:30 - 12:00	$410	Course #7411
	This course is for Property Administrators (PA's) and Lab-wide customers with a need to view property record information. PA's receive hands-on instruction to update property element and location information. All participants will receive hands-on instruction to generate and print a variety of property reports. The MAT-2 Property Administrators course is recommended before PA's attend this course.			
Secretarial/Contract Services (SE):	Scheduled Upon Request		$410	Course #7481
	This class provides hands-on instruction for creating secretarial requests for temporary services, entering time for contract employees, and creating reports using the Information Manager Utility. The students will also learn how to review notifications and approve attendance. A training database will be used for the class.			
Signature Authority System (SAS):	2/9/95	1:15 - 4:45	$410	Course #7582
	Managers or their designees receive instruction to assign, view, and change signature authorities (purchase request, chemical purchase, and handling hazardous material). Participants will also learn how to generate and print authority reports for their organizations.			
STORES:	Scheduled upon request		$410	Course #3529
	Participants receive hands-on instruction to search for an item in the on-line catalog by key word, part number, or exact name. Participants learn how to select items from the catalog, and place, change and cancel an order. Several methods for reviewing orders are also taught including reviewing an order in detail, scanning all orders, and reviewing back-orders.			
Travel Reporting Information Planning System (TRIPS):	2/17/95	8:30 - 12:00	$410	Course #4369
	Class participants receive hands-on instruction to prepare travel requests (TRs) on-line and learn the print, revise, and cancel options. The participants also learn how to use the on-line approval function. The various reports available in TRIPS-II are reviewed.			

LANL Research Library Training

The LANL Research Library provides training for its users, free of charge, for the specialized databases owned by the library. Please call the Research Desk at 7-5809 or e-mail *ref@lanl.gov* for reservations, for a special session or tour, or for more information. Space is limited to 8 per class. Sessions begin at times and dates indicated below. Each session is 30 minutes, except the Gopher class which is 2 hours.

Date/Time	Subject Matter
2-2-95/10:00	Information Resources on the Internet via Gopher
2-8-95/11:00	MELVYL: University of California databases
2-9-95/1:00	Information Resources on the Internet via Gopher
2-14-95/1:00	Using Corporate Directories
2-16-95/10:00	Information Resources on the Internet via Gopher
2-21-95/1:00	Code of Federal Regulations
2-22-95/11:00	Medline via MELVYL
2-23-95/1:00	Information Resources on the Internet via Gopher
2-28-95/1:00	Free Sources on LIBNET

ICNchanges Contents

Change Control for February 1995

Schedule for Change Control

Date	Activity
February 7 (First Tuesday)	New or changed software is available in experimental (**X**) files on CFS for testing. This initial testing period is for uncovering problems in the software before the software is put into production. If you find a problem, please call the ICN Consulting Office at (505) 667-5745.
February 14 (Second Tuesday)	The changes become production version on, • Machines **rho**, **epsilon** and **zeta** (UNICOS) • Distributed processor **beta** (ULTRIX) • Distributed processor **ccvax** (VMS)
February 21 (Third Tuesday)	If no problems are reported to the ICN Consulting Office (505) 667-5745, changes are installed on • Machines **delta** and **gamma** (UNICOS)

Note: A stop sign in front of a title is significant:

STOP **= incompatible changes; please read!**

Deletions

This section lists utilities and services that are targeted for deletion or have already been removed from the systems listed. If removal of these files or services will cause you a problem, please contact Marj Johnston at (505) 667-5745 or send e-mail to **mdj@lanl.gov** immediately.

⬢STOP **TIG**

STORES will be inaccessible without a **smartcard**.

On March 1, 1995, the ST Micom option on the TIG will be discontinued. Access will continue to be available from the TIG for **smartcard** holders. The following procedure will initiate this access.

1. For the Micom menu option type: **TIG.**
2. Perform the ICN authentication.
3. At the TIG prompt type: **telnet ia**.
4. At the ICN User Number prompt type: *your Z Number.*
5. At the Passcode prompt type: the *smartcard code* returned by *your smartcard.*

This will get you to the Inform Applications (IA) menu. At this point you can choose the Stores option or any other of the IA options.

If you have access to a node on the Open Partition, and that node can emulate a VT terminal, then you can access the IA applications without going through TIG. Use this procedure:

1. At a local node prompt type: **telnet i**a.
2. At the Username prompt type: **IA**.
3. At the ICN User Number prompt type: *your Z Number.*
4. At the Passcode prompt type: the *smartcard code* returned by *your smartcard*.

For more information see the article "SMARTCARDS: THEY KEEP GOING" in the Feature Articles section of this issue of *BITS*.

Changes

CF77 (UNICOS)

Function

Cray Research Fortran 77 Programming Environment**.**

Change

The CF77 compiling system will be upgraded to Version 6.2 on Machine Zeta running UNICOS Version 8. This upgrade will bring the software up to the latest set of bug fixes.

X File Access

No experimental (**X**) files.
Will be available per Change Control Schedule for Machine Zeta.

Online Documentation

To display the Cray man page (dated 3/94), enter: **man cf77**

CF90 (UNICOS)

Function	Fortran 90 Programming Environment Compiler.
Change	The Cray Fortran 90 compiler will be upgraded to Version 1.2. This upgrade will bring the software up to the latest set of bug fixes.
X File Access	No experimental (**X**) files.
Online Documentation	To display the man page (dated 12/93), enter: **man f90**
Printed Documentation	*CF90 Commands & Directives Reference Manual* (CIC#1999, SR-3901, 12/93, $15). *CF90 Fortran Language Reference Manual* (CIC#1997, SR-3902, 12/93, $179).

COST (UNICOS)

Function	Produces a monthly summary of CCF charges for a specified user, group, program, division, or charge code.
Change	COST has an option to produce a list of all CFS root nodenames belonging to a given user, group, program, or charge code. These root nodenames were obtained from the CFS file **/cfs/roots**. With the split of the CFS into two separate (open and secure) operations, this single file became two files. COST has been adjusted so that the search for the appropriate filenames encompasses both these files.
X File Access	On CFS as: **/ccx/unicos/bin7/costx** for Machines Gamma and Rho. On CFS as: **/ccxs/unicos/bin7/costx** for Machines Delta and Epsilon. On CFS as: **/ccxs/unicos/bin8/costx** for Machine Zeta.
Online Documentation	To display the man page (dated 10/93), enter: **man cost**

CRAYLIBS (UNICOS)

Function	CRAYLIBS contains the asynchronously released libraries from Cray Research, Inc.
Change	CrayLibs contains two asynchronously released libraries. The math library, **libm.a**, and the scientific routines library, **libsci.a.** Both will be upgraded to Version 1.2. CRAYLIBS supports the SCC 4.0, CF90 1.0, and CF77 6.0 programming environments.
X File Access	No experimental (**X**) files. Currently available as: **/lib/libm.a** and **lib/libsci.a.** for Machines Gamma and Rho.
Online Documentation	To display the man page for a specific routine, enter: **man** *routine_name*

CRAYTOOLS (UNICOS)

Function

The CRAYTOOLS package contains programming support tools for SCC, CF77, and CF90.

Change

The CRAYTOOLS package that provides programming support tools for the SCC, CF90, and CF77 compiling systems will be upgraded to Version 1.3 from Cray Research, Inc. CRAYTOOLS supports the SCC 4.0, CF90 1.0, and CF77 6.0 programming environments. The following is a list of CRAYTOOLS affected by this change.

apprentice	**cflint**	**totalview**
cdbx	**libcif**	**xbrowse**
cflist	**tooltalk**	**xhelp**

For more information on the individual tools, please refer to the man pages on UNICOS.

X File Access

No experimental (**X**) files.
These tools are currently available as:
    /bin/*craytools_name*
    /usr/bin/*craytools_name*
    /usr/lib/*craytools_name*
for Machines Gamma and Rho.

Online Documentation

To display the man page, enter: **man** *craytools_name*

ENSIGHT (HP, IBM, SGI, SUN, UNICOS)

Function

Multi-Purpose Graphics System.

Change

ENSIGHT (formerly called MPGS) is a distributed, interactive, post-processing tool for finite element engineering visualization. While the computational portion runs on any Cray system (available for Rho and ACL T3D), the graphics frontend can reside on any SGI, HP, IBM, or Sun graphics workstation.

Version 5.2.2 contains various bug fixes and feature enhancements required for local users.

For more information, contact Wayne Vieira at (505) 667-5093 or e-mail at **waynev@lanl.gov**.

X File Access

No experimental (**X**) files.
Currently available as: **/usr/local/bin/ensight** for Machine Rho.

HEXAR (UNICOS)

Function

Automatic mesh generator from Cray Research, Inc.

Change

HEXAR has been upgraded to Version 1.1 on the ACLs T3D (YMP portion) and has been installed for a 90 day trial period on Machines Gamma and Rho. It is improved and enhanced significantly from the HEXAR 1.0 initial release in June 1994. HEXAR is available for all Cray architectures.

HEXAR is a parallel automatic volume grid generation software package that works directly on raw computer aided design (CAD) surface data. A solid modeling step is unnecessary. HEXAR produces unstructured, boundary-fitted meshes containing only hexahedral ("brick-shaped") elements. This element type is an optimal choice for numerically accurate simulations. HEXAR produces meshes that are suitable for most real-world CFD, CEM, and FEA applications.

Improvements in the mesh-building algorithms have resulted in HEXAR 1.1 achieving a 70 percent rate of successfully creating a viable hexahedral mesh on the first iteration, without user intervention. This compares to a field where a success rate of 40 percent often justifies bringing a product to market. Also, mesh element quality has been improved, memory requirements have been reduced by half, and CPU performance has been improved by 50 percent.

For more information, contact Wayne Vieira at (505) 667-5093 or e-mail at **waynev@lanl.gov**.

X File Access

No experimental (**X**) files.
Currently available as: **/usr/local/apps/hexar/hexar** on the ACL T3D (YMP portion) machine.
Currently available as: **/usr/local/usys/hexar/hexar** on Machines Gamma and Rho.

Online Documentation

To display the man page (dated 2/95), enter: **man hexar**

HEXAR User's Guide available as: **/usr/local/apps/hexar/MANUAL.PostScript** on the ACL T3D (YMP portion) machine.

HEXAR User's Guide available as: **/usr/local/usys/hexar/MANUAL.PostScript** on Machines Gamma and Rho.

Printed Documentation

HEXAR User's Guide (APG - 5532 v 1.1).

JOINF (UNICOS)

Function

Joins component files produced by SPLITF into a single file identical to the original file processed by SPLITF.

Change

JOINF was granted a Change Control exception on January 13, 1995. The change allows JOINF to work around an error committed by SPLITF on Machine Epsilon during the period December 11, 1994, through January 12, 1995. Formerly, files generated by SPLITF on that machine (only) during that period (only) could not be rejoined by JOINF. Now they can.

JOINF (contd.)

X File Access

No experimental (**X**) files.
Currently available as: **/usr/local/bin/joinf** for all Cray machines.

Online Documentation

To display the man page (dated 4/93), enter: **man joinf**

SMARTCARD

The **smartcard** command available from the main menu of the register machine
has changed. It is now a menu driven interface that gives customers the option of
getting general information about their card. It now lets you set your PIN and
resynchronize your smartcard.

Please see the article "SMARTCARDS: THEY KEEP GOING" in the Feature
Articles section of this issue of *BITS*.

SMARTCARD (UNICOS)

SMARTCARDS for **telnet** and **ftp** logins are now allowed on the UNICOS
Machines Gamma and Rho. A customer can specify either an 8 character ICN
password or a 6 digit SMARTCARD passcode in response to the password
prompt.

The following shows the new prompt for **telnet**.

> **telnet gamma**
>
> Trying 128.165.200.1...
>
> Connected to gamma.lanl.gov.
>
> Escape character is '^]'.
>
> Cray UNICOS (gamma) (ttyp071)
>
> login: user1
> ICN Password or Passcode [123456]:

The following shows the new prompt for **ftp**.

> **ftp gamma**
>
> Connected to gamma.lanl.gov.
> 220 gamma FTP server (Version 5.2 Fri Sep 7 14:09:58 CDT 1990) ready.
> Remote system type is UNIX.
> Using binary mode to transfer files.
> Name (gamma:user1): user1
> 331 ICN Password or Passcode required for user1.
> Password:

For more information please see the article "SMARTCARDS: THEY KEEP
GOING" in the Feature Articles section of this issue of *BITS*.

SPLITF (UNICOS)

Function	Splits large files into a familied sequence of files, each small enough to be stored on CFS.
Change	SPLITF was granted a Change Control exception on January 13, 1995. The change corrected certain errors in the previous version. These errors came from the (erroneous) assumption that all Cray machines had names consisting of five or less characters. When the operating system on Machine Epsilon changed from UNICOS Version 6.1 to UNICOS Version 7.0, the machine name (as returned by user command **mach**) changed from **E** to **epsilon** (seven letters). This lead to the production of SPLITF-generated files that could not be rejoined by JOINF (see the JOINF (UNICOS) article in the ICNchanges section of this issue of BITS).
X File Access	No experimental (**X**) files. Currently available as: **/usr/local/bin/splitf** for all Cray machines.
Online Documentation	To display the man page (dated 3/94), enter: **man splitf** For the built-in help package, enter: **splitf -h**

Network Services Information

This section provides information and a record of changes to the software and hardware that make up the ICN network and the services it provides. If you detect a problem, please call the ICN Consulting Office at (505) 667-5745, or send electronic mail to **consult@lanl.gov**.

STOP MICOM

On February 7, 1995, ICN pre-authentication will be discontinued for MICOM users accessing STORES and TYMNET. Users will continue to provide local login information before they can use these services, but now you will only type your login information once.

System Information

This section provides information and a record of changes to the ICN operating systems. When changes are announced here, they may already be included in the production versions of the indicated operating systems and machines. Most of the changes are strictly internal to the systems and should not affect users. However, if you detect a problem, please call the ICN Consulting Office at (505) 667-5745, or send electronic mail to **consult@lanl.gov.**

STOP **UNICOS Worker Machines**

Effective February 1, 1995, the preventative maintenance schedule for the UNICOS worker machines will change. The maintenance will now be performed on Wednesday mornings between the hours of 4:00 A.M. and 7:00 A.M. Mountain Time. Each machine will be scheduled every fourth week.

See the CCF Machine Availability and Downtime table at the end of the ICNchanges section.

Documentation

New and Updated Man Pages

The following online information has been added or updated.

UNICOS Man Pages

To access a UNICOS man page, enter: **man** *command_name*, where *command_name* is the name of the command, library, routine, or utility whose man page you wish to view.

Man Page	Description
hexar	HEXAR is a parallel automatic volume grid generation software package that works directly on raw computer aided design (CAD) surface data.

To create ASCII files of the Cray man pages, use one of the following commands to remove the special characters for bold and underlining:

UNICOS 7.0 and 8.0: **man** *command_name* | **col -bx >** *filename*

Barbara Ritchie (**bxr@lanl.gov**), (505) 667-7275
Communication Arts and Services (CIC-1)

Information About Change Control

ICN Change Control is the set of procedures that coordinates changes in the ICN to ensure quality control and smooth operation and to avoid introducing additional problems. In an environment as dynamic as the ICN, control must be imposed on the scope and timing of changes that involve many components. Please report any problems as soon as they occur by calling the ICN Consulting Office at (505) 667-5745.

The following CFS nodes are used for software that is maintained or announced through Change Control procedures. The files under **/ccx(s)/unicos** are deleted the last Friday of each month because these experimental versions become the production versions on all machines by the third Tuesday of the month. The other nodes keep the most recent versions of their respective software.

Open Network

Non UNICOS	**/ccx**/*platform**/*filename*
UNICOS	**/ccx/unicos**/*type***/*filename*
	examples: **/ccx/mac/ppages**
	/ccx/unicos/bin7/ppagesx
	/ccx/unicos/ubin7c/tedix
	/ccx/vax/ppages.bak

Secure Network

UNICOS	**/ccxs/unicos**/*type***/*filename*
	example: **/ccxs/unicos/lib8/libcftlib.a**

*Where *platform* is:

alpha_osf	tar files for DEC Alpha OSF/1 machines.
alpha_vms	backup save sets for DEC Alpha VMS machines.
convex	tar files for Convex machines.
dec_risc	tar files for DEC RISC workstations.
dos	executables for PC/DOS machines.
hp	tar files for Hewlett-Packard workstations.
ibm_rs6000	tar files for IBM RS6000 workstations.
mac	binhex (**.hqx**) or MacBinary (**.mbin**) files for Macintosh computers.
next	tar files for NeXT workstations.
sgi	tar files for Silicon Graphics workstations.
solaris	tar files for Sun Solaris workstations.
sun	tar files for Sun workstation.
ultrix	current executables to test on Beta.
unicos	executable **X** files for current Change Control cycle.
vax	backup-save-sets for VAX/VMS systems.

**Where *type* is:

bin	binary file.
lib	library.
#	operating system (OS) version.
u	user-supported.

If problems are discovered during the cycle, defective hardware or software is corrected, replaced, removed, or backed off.

Online Information

You can access complete online information about Change Control by using the Internet Gopher Server. For more information on how to connect to the Gopher Server, see the article "Internet Gopher Delivers Information" in the Feature Articles section of the September 1993 News. You may also contact the Customer Service Center at (505) 665-4444 or e-mail **cichelp@lanl.gov**.

After you connect to the Gopher Server you will see a menu of options. Select the following series of options from the **gopher** menu:

- Computing at LANL
  You will get a new menu.
- Computing News ICNchanges
  You will get a new menu. Select the next menu that reflects your needs.
    - Keyword Search of all ICNchanges (?)
    - Current (*month year*)
    - 1994 Archives
    - 1993 Archives
    - 1992 Archives
    - 1991 Archives
    - 1990 Archives
- Select "Current (*month_year*)"
  to get a list of the articles for the current month's Change Control.

*Barbara Ritchie (**bxr@lanl.gov**), (505) 667-7275*
Communication Arts and Services (CIC-1)

MARCH DEADLINE

The deadline for articles for the March 1995 Change Control is 8:00 am. Monday, February 20, 1995. Please submit items to **bulletin@lanl.gov.**
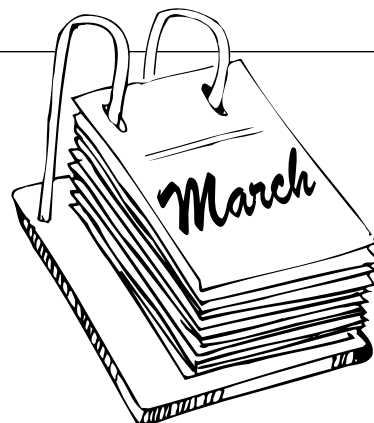
CCF Machine Availability and Downtime

Machine Name(s)	Machine Type	Operating System	Security Partition	System Availability (Dec. 1994)	Scheduled Downtime*
delta	CRAY Y-MP8/8-128	UNICOS 7.0	Secure	99.5%	February 15/0400-0700
epsilon	CRAY Y-MP8/8-128	UNICOS 7.0	Secure	99.5%	February 1/0400-0700
rho	CRAY Y-MP8/8-64	UNICOS 7.0	Open	99.8%	February 1/0400-0700
zeta	CRAY Y-MP8/2-64	UNICOS 8.0	Secure	98.4%	February 8/0400-0700
gamma	CRAY Y-MP/M98-82048	UNICOS 7c	Open	99.6%	February 8/0400-0700
tau**	CRAY T3D MC256-16	MAX 1.2	Secure	100%	February 15/0400-0700
	CRAY Y-MP4I/464-2	UNICOS 8.0			
pi**	CRAY Y-MP EL92/1-256	UNICOS 8.0	Open	100%	
cluster	IBM Workstation Cluster	AIX	Open		
beta	VAX 6320	ULTRIX	Open		
CCVAX	VAX 6410	VMS	Open		
OFVAX	VAX 6410	VMS	Open		
canyon	Thinking Machines Corp. CM-200	SunOS	Secure		
tres	Thinking Machines Corp. CM-200	SunOS	Secure		

* Additional downtime for the Cray machines may occur as a result of Network Dedicated Systems Time (NDST). The schedule for possible NDST is from 0600 — 0700 Mountain Time, Monday through Friday. Should NDST become necessary, a message listing the scheduled downtime will be broadcast on the applicable machines before the actual downtime occurs. For additional information contact the shift supervisor at (505) 667-4584. All times listed are Mountain Time.

** Access restricted.

Questions About Announced Changes?

Notice of all scheduled downtime will be broadcast on the machine before the downtime. For up-to-date machine status and scheduled downtime call: CCF Status Message (505) 667-5588.

Publication Information

Advanced Computing Laboratory

When first founded, the Advanced Computing Laboratory (ACL) was intended to provide an applications-driven environment for developing leading edge computing technologies, primarily in the areas of parallel and distributed computing, scientific visualization, and high-speed networking.

In December 1991, Los Alamos National Laboratory was named as one of two national HPCRC (High-Performance Computing Research Center) sites by the Department of Energy's HPCC (high-performance computing and communications) program. The ACL is the foundation upon which this center is being built. The mission of the ACL is to facilitate solution of tomorrow's complex, interdisciplinary problems in science, industry, and defense. This will be accomplished by focusing on a few Grand Challenge-scale applications, providing a unique simulation environment and advanced computational resources, having a world-class staff, and forging links with other centers of excellence.

The resources of the ACL are available to LANL employees with a demonstrated need for the unique resources that the ACL provides. In addition, industrial collaborators may seek access through a partnership with the Laboratory, which can be arranged through the Computational Testbed for Industry (CTI). Under the auspices of the DOE Grand Challenge program, other external researchers involved in the LANL-based Grand Challenge projects may also seek access. An ACL account application form is available by sending e-mail to **proposal@acl.lanl.gov.** The only payment the ACL requests for use of its resources is a copy of any paper or other publication with ACL acknowledgment in the publication.

ACL Machine Availability

Machine Type	Operating System	Security Partition	Machine Name(s)
FPS350X (Stardent GS2000)	STELLIX	Open	stella
FPS500	FPX	Open	blanche
ibm930	AIX	Open	ibm930
Intel iWARP	SunOS	Open	iwarp
Motorola Monsoon	SVR2	Open	monsoon
SGI ONYX	SVR3	Open	black
SGI 380VGX	SVR3	Open	panda
IBM 550	AIX	Open	noid
Thinking Machines Corp. Connection Machine CM-5*	SunOS	Open	cm5-1 to cm5-8
CRI T3D*	UNICOS 80	Open	T3D
Sun 4/670	SunOS	Open	koala
Sun 4/670	SunOS	Open	cocker
Sun 4/670	SunOS	Open	collie
Sun 4/670	SunOS	Open	pooh

* Special access rules apply.

To order free software, fill in your name, group, and mail stop; check the software you would like to have and mail this form to

Free Software
Desktop Support Center (CIC-2) MS D445

Name_____ Group_____
Mail Stop_____ Z-Number_____

Please send the correct number of replacement high-density diskettes with your request. This software can also be retrieved via FTP from *ftp.lanl.gov*.

Macintosh Software Order Form

_____ **FREEWARE DISKETTE** (Include 1 high-density disk.)
This diskette contains the following software:
Alias Finder: Quickly finds the original of an alias when the alias is dragged on top of the Alias Finder icon.
Color Cursor: INIT turns arrow cursor into the Apple colors.
Disinfectant: Virus protection for the Macintosh.
Disk Copy: Creates copies of diskettes using one floppy drive.
Mode 32: Allows Macintosh II, IIx, IIcx, and SE/30 to access more than 8 Mbytes of memory with System 7.0 or later.
SCSI Probe: Shows connected devices on the SCSI bus.
StuffIt Expander: Unstuffs BinHex 4.0, StuffIt, and other types of compressed files.

Note: THE FOLLOWING TWO APPLICATIONS COME WITH SYSTEM 7.5:

Extensions Manager: Allows selection of which INITs to load.
SuperClock: Puts a clock in the upper right corner of your Macintosh.

_____ **INTERNET DISKETTE** (Include 1 high-density disk.)
This diskette contains the following software:
Fetch: Easy-to-use for FTPing files from FTP archives.
NCSA Telnet: Telnet application
TurboGopher: Gopher client application for the Macintosh.
StuffIt Expander: Unstuffs BinHex 4.0 and other types of compressed files.

_____ **HARDWARE SYSTEM UPDATE 3.0** (Include 2 high-density disks.): Update for System 7.1

_____ **MACINTOSH SYSTEM 7.5** (Include 9 high-density diskettes.)
Indicate number of systems on which this System 7.5 will be used: _____
Note: Manuals and diskette sets available at a small cost. CD-ROM version available for loan. Call 667-5884 for details.

_____ **SYSTEM 7.5 POWERTALK AND QUICKDRAW GX.** (Include 4 high-density diskettes.)
Note: We recommend that you do not install these parts of System 7.5 unless you have a specific need to do so.

IBM Software Order Form (Include 1 high-density disk for each selection.)

_____ **DATA PHYSICIAN:** Virus detection programs.

_____ **GOPHER DISK:** PC Gopher III for DOS, HGopher for windows, and
PKZip: File compression and decompression program.

_____ **INTERNET DISKETTE:**
lview31   A gif/bmp/pic viewer.
tsyncl_8   Set your pc clock via lanl ntp timeserver automatically.
WS_Ftp   Super ftp client.
WS_Ping   Super ping and nslookup.

_____ **LIST:** Searches for character strings within files.
Includes **Machinist's Assistant:** Calculates cut angles, etc., for machinist work.

Accessing Computing Machines through the ICN

This table shows how to access open machines on the ICN through MICOM lines, TCP/IP hosts, and DECnet hosts. Additional machines outside the ICN are accessible through TCP/IP and DECnet. To access any of these machines, except for LIS, you must first establish an ICN account, which includes obtaining an ICN password and registering as an ICN user (contact the CIC Customer Service Center for details).

Example: Suppose you want to access the REGISTER machine from MICOM. By referring to the table, you can see that the appropriate command to enter is tig. Once you connect to the tig, enter your ICN usernumber and password as prompted. At the tig prompt (tig>) enter register and login to the register machine.

FROM \ TO	Hosts reachable from MICOM Lines:(BETA, CCVAX, IOVAX, OFVAX, STORES, TYM-NET, LIS)	TCP/IP Hosts: (BETA, CCVAX, IBM Cluster IOVAX, OFVAX, REGISTER, UNICOS, ACL Hosts, etc.)	DECnet Hosts: (BETA, CCVAX, IOVAX, OFVAX, etc.)
MICOM Lines	hostname	TIG TELNET hostname	TIG TELNET DIG SET HOST hostname
TCP/IP Hosts (e.g., TIG)	TELNET MICOM hostname	TELNET hostname	TELNET DIG SET HOST hostname or, from BETA DLOGIN hostname
DECnet Hosts	SET HOST DIG TELNET MICOM hostname	SET HOST DIG TELNET hostname	SET HOST hostname

Accessing the ICN through Dialup Modem

Dialup access to the ICN is available through the Terminal Internet Gateway (tig). The tig is a gateway to the internet and allows you to telnet to ICN machines as well as other machines. Configure your modem and terminal for 8 bit, no parity, one stop bit. Based on your modem, select the appropriate number listed in the table to dial into the tig. Then enter your ICN usernumber and pass-word as prompted. At the tig prompt (tig>) enter a machine name or IP address.

Report problems to the Network Control Center at 667-7423 Monday through Friday, 6 am to 6 pm or at 667-4585 during non-business hours.

Type of Access	Phone Numbers
Microcom Modems from 300 to 28,000 b/s	(505) 667-9020, 9021 (Number of Lines 16)
Microcom Modems from 300 to 14,400 b/s	(505) 667-9022, 9023, 9024, and 9025 (Number of Lines 48) (800) 443-1461 (Number of Lines 10)

Note: Use the second phone number if the first does not answer properly.

Revised December 1994

Los Alamos
National Laboratory

INTEGRATED COMPUTING NETWORK
(ICN) VALIDATION REQUEST

To access ICN Computing resources, please complete all parts
of this form that apply to you, Including "Special Requirements."

If you have **questions**:

Call: (505) 665-1805
E-mail: validate@lanl.gov

Mail your completed application to:
ICN Password Office   (PWO)
Mail Stop: B271
Los Alamos National Laboratory
Los Alamos, NM 87545

All Laboratory computers, computing systems, and their associated communication systems are for official
business only. By completing this request, users agree not to misuse the ICN. The Laboratory has the
responsibility and authority to perodically audit user files.

Owner Information

Z-Number (if you have one)	PWO Use Only	Name (last, first, middle initial)
LANL Group	LANL Mail Stop	Citizenship (Foreign National see "Special Requirements-Foreign National")
Phone Number	Cost Center	Program Code

Check LANL affiliation:

☐ LANL employee

☐ Contractor _____
(specify contract company)

☐ Consultant, VSM, associate

☐ External user_____
(specify employer)

☐ Other (specify)_____

Send password / smartcard to:

☐ Mail Stop   or   ☐ Mail to address indicated below

Name / Organization

Address

City, State, Zip Code

Access   Check access method and needed partitions.

Access method: ☐ ICN Password   ☐ Smartcard   ☐ Both

☐ **Open** partition (e.g., email systems, open machines)

☐ **Administrative** partition   (e.g., IA [BUCS, Stores, Travel], IB [EIS, FMIS, PAIRS])

If you are not a Q-cleared LANL employee, see required steps in section "Special Requirements-Administrative Partition.

☐ **Secure** partition (i.e., secure machines)
Indicate level(s) of data to be processed:

☐ Unclassified

☐ Secret

I certify this person does require secure access:

_____
Manager Signature   (Group Leader or above)   Date

NOTE: A Q-clearance is required. All classified computing must be performed within the Secure environment.

PWO Use Only

New	Change	Clearance Status	Processed	Lv	Smartcard Serial #
☐	☐				

Comments:

Form 1846 (11/94) Superseedes previous versions (rev. 11/08).

Continue

Special Requirements

Administrative Partition
(U.S. Citizens Only)   Lab-Wide Systems (e.g., IA [BUCS, Stores, Travel], IB [EIS, FMIS, PAIRS])

☐ Under 18 years of age — If you need to access Administrative systems, your group leader must provide a memo accepting responsibility for your actions and justifying your need for access. This memo is to accompany all forms taken to the security briefing (see "Contractor or Non-Q-Cleared") section below. You may not access the Secure Partition.

☐ Contractor or Non-Q-Cleared

Phone (505) 667-9444 to obtain Access Authorization packet.

Phone (505) 667-9153 to schedule a security briefing.

Bring all forms including this ICN Validation Request to the security briefing for approval.

Security Briefing Approval Signature	Date

☐ Foreign National

Attach a copy of Form 982 (REQUEST FOR UNCLASSIFIED VISIT OR ASSIGNMENT BY A FOREIGN NATIONAL) with all approval signatures. Be sure Box #11 of Form 982 is completed. If you are not a visitor/assignee under a LANL/DOE approved Visit / Assignment Request, attach written justification from your host Division Director describing your need to access the ICN.

Authorization (required)

Print Manager Name (Group Leader or above)	Manager Z-Number	Group
Manager Signature (Group Leader or above)	Mail Stop	Date

If you are NOT a LANL employee, obtain your LANL contact's signature in addition to the contact's manager's signature.
NOTE: LANL contacts are regular Laboratory employees. Contacts are responsible for obtaining annual re-authorizations, forwarding renewals, and notifying the ICN Password Office of changes in user or contact status.

Print LANL Contact Name	Contact Z-Number	Phone Number	Group
LANL Contact Signature		Mail Stop	Date

Reader Feedback

Feedback helps us to provide a document that responds to the changing needs of its readership. If you have comments or questions about this publication, please let us hear from you. We have reserved the back of this form for that purpose. We also accept articles for publication that are of interest to our readers. Contact the managing editor for more information. This form is also used for new subscriptions, deletions, or changes. Instructions are on the back. If you prefer to contact us by E-mail, send your comments and/or subscription request to finney@lanl.gov.

Fold on This Line First

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 88 LOS ALAMOS NM

POSTAGE WILL BE PAID BY ADDRESSEE

CUSTOMER SERVICE GROUP (CIC-6)

c/o MIKE FINNEY, MANAGING EDITOR

MAIL STOP B251

LOS ALAMOS NATIONAL LABORATORY

LOS ALAMOS, NEW MEXICO 87544

Fold Here

cut along dashed line

Feedback

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

New Subscriptions, Deletions, and Changes

BITS is published by Los Alamos National Laboratory. If you would like to be added to or deleted from our mailing list, please check the appropriate line, complete the form below, and mail us the form.

——— Add my name to the **BITS** mailing list.

——— Delete my name from the **BITS** mailing list.

——— Change my name/address as indicated below.

Name   Date

Address   Mail Stop

Group   Organization

City   State   Zip

Phone   Number of copies   Employee Z#

INDEX

This index is organized according to keywords taken from the original titles of *BITS* articles. Keywords are listed in alphabetical order and the coverage of articles goes back one year from the date of the current issue.

Los Alamos
NATIONAL LABORATORY

Los Alamos, New Mexico 87545

Annual High Performance Computing and Communications Conference

The National High Performance Computing and Communications Council will hold the 9th Annual High Performance Computing and Communications Conference on April 3-5, 1995. This year's conference is being held at the Radison Hotel at Mark Center in Alexandria, VA. The theme of this year's conference is "Applications of High Performance Computing and Communications—The Grand Challenges." Featured Grand Challenge presentations will cover weather modeling, design for environmental protection, telemedicine, space, and automotive design.

For registration and further information contact Dr. John Miguel, Conference Chair, P. O. Box 313, Tiverton, RI 02878-0313; Phone: (602) 895 1326; Fax: (602) 895 5628; E-mail: 75151,2100@compuserve.com; or call the conference hotline: Telephone/Fax: (401) 624 4190; E-mail 75304,103@compuserve.com.

SOCIETY AND THE FUTURE OF COMPUTING '95: CALL FOR PARTICIPATION

As our national research community responds to new national needs, our society needs a vigorous and open discussion about the social goals of computer science research and applications. This conference will provide a forum in which to share, explore, and demonstrate the responsible use of advanced scientific computing and National Information Infrastructure program technologies for the benefit of diverse communities, and articulate novel research directions that advance computer science in ways that have high social benefits.

Time and Place: June 11-14, 1995/Tamarron Lodge Durango, Colorado

This conference will include invited speakers; panel organizers and panelists from academia, industry, and government; and 40-50 poster presentations. If your work is in any way related to the themes of this conference, you are encouraged to come share your ideas in the form of a poster presentation at the conference. For more information about the conference, see the conference web pages at the URL:

http://www.lanl.gov/LANLNews/Conferences/.sfc95/sfcHome.html

To receive a conference information and registration booklet please send your name, US postal address, e-mail address, and phone number to the conference registrar through e-mail to sfc95@lanl.gov, or if you do not have e-mail send your request to SFC '95 Conference Registrar, Protocol Office, Attn: Jan Hull, Mail Stop P366, Los Alamos National Laboratory, Los Alamos, NM 87545, USA.

Are You Getting Your BITS When and Where You Want It?

Lately we've had some reports from our readers that the mailing of their BITS has been late or that their address printed on the back cover of BITS is not correct. If you are having problems of this kind please let us know about them. We want to make every effort to ensure that BITS arrives promptly and at the correct address. You may send your comments through e-mail to finney@lanl.gov or use the Reader Feedback form on page 41 of this issue.

Los Alamos
NATIONAL LABORATORY

Los Alamos, New Mexico 87545

LALP-95-43